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**APPLICATION OF SOCIAL CONTROL THEORY
ON BAGCILAR HIGH SCHOOL STUDENTS:
HIRSCHI'S MODEL**

By: Umit AKCIGER

**Thesis submitted
in fulfilment
of the requirements for the award of Philosophy of Doctorate at
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Abstract

Application of Social Control Theory on Bagcilar High School Students:

Hirschi's model

By

Umit Akciger

The delinquency and drug problems have wide range of damaging consequences not only for the individuals involved in delinquency and illegal drug use, but also for their families and the overall community. In order to overcome such problems, understanding the causation or restraining factors in determining both delinquency and illegal substance use oriented behaviors is essential.

Unfortunately, there are limited studies to understand the reasons and restraining factors of delinquency and illegal substance use within criminological theories in Turkey. However, there are outnumber studies carried out to test the validity of various criminological theories in explaining delinquency and illegal substance use in other Western country cases. Among such theories, 'social control theory', as one of the most accepted and strongest criminological theories, has been tested in those countries. However, limited numbers of studies have been conducted on 'social control theory' in the countries where traditional values are still dominant, such as Turkey. Therefore, this study aims to fill this gap in the case of Turkey.

The aim of this study, hence, is to measure the nexus between social control elements and both delinquency and illegal substance use among Bagcilar High School students within the theoretical framework of 'social control theory'. Bagcilar is the biggest borough of Istanbul, which has received migration from different parts of Turkey in the last thirty years with different cultural backgrounds. Therefore, it is one of the cosmopolitan parts of the Istanbul city with its population diversity.

In fulfilling the aim of the study, secondary data has been used in testing the social control theory for which the variables have been derived from various studies based on literature review. Extensive statistical analyses were applied to the data set to measure the relationships between social control variables and delinquency and illegal substance use related behaviour, which included correlation and regression analyses.

The findings show that some of the social control variables verified the social control theory in Bagcilar's case, while others did not. As a result, social control theory with its identified variables explains 31.9 percent of delinquency and 34.5 percent of illegal substance use in overall. It is important to note that some of the variables considered to be important in the Turkish case such as religion could not be found as a significant variable. On the other hand, it has been observed that family structure is statistically significant on younger ages while it is not statistically significant for elders.

Based on finding, policy recommendations have been made for both law enforcement agencies and other governmental institutions, because it has been widely accepted that fighting with delinquency and illegal substance use cannot be limited to law enforcement agencies, as the involvement of other social policy oriented organizations are indispensable.

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CHAPTER 1: INTRODUCTION

The delinquency and drug problems have negative consequences not only for the individuals involved in delinquency and drug using activities, but also for their families and the overall community. In order to understand the damage caused by delinquency and drug use to society, a critical analysis of many perspectives, such as the health, social, economic and criminal perspectives, should be performed (Hser, Hoffman, Grella, & Anglin, 2001; UNODC, 2008c). It is widely accepted in society that crime and illegal substance use not only jeopardize social order but also negatively affect the social life, economy, life standard of society and most importantly, the very foundation of democracy in a country (McCollister, French, & Fang).

Abuse of drugs, especially, is a significant threat for both the individual's and society's health, and this has been accepted as a disease by most scientists for a long time (Inciardi, 2002; Lindesmith, 1938; Morgan, 1991; Valverde, 1998). Drugs have a direct effect on the brain and the central nervous system, and abuse of these substances may cause fatal injuries. Moreover, deadly diseases, such as AIDS and Hepatitis are more likely to spread among drug users in relation to their drug use habits or during sexual activities while they are intoxicated. Therefore, drug users create greater risks for others who share the same environment. Drug users' productivity in their legitimate jobs (Mangione & Quinn, 1975) and drug user students' success rates tend to fall (J. D. Hawkins, Catalano, & Miller, 1992; T. P. Thornberry, 1987) because of drug use habits. Drug users are less likely to continue their routine daily activities than others who do not use drugs.

Governments lose billions of dollars each year in their fight against delinquency and drug smuggling organizations. Engaging health professionals, law enforcement members, and purchasing specific technological equipment for surveillance and intelligence forces increased government spending in order to fight delinquency and the drug problem (Nurco, Hanlon, Kinlock, & Duszynski, 1988), which then directly affects law abiding citizens who have to pay increased taxes (Kagitcibasi, 1970).

On the other hand, the drug problem also contributes to higher crime rates and added expense for the criminal justice system. Heavy drug use and addiction typically leads to criminal behavior as a way to supply drug habits (Nurco et al., 1988). Drug users may also commit crime simply because they are under the influence of drugs (Goldstein, Brownstein, & Ryan, 1992). Additionally, drug manufacturing and trafficking lead to other forms of criminal activities related to the illicit drug culture (Currie, 1994).

According to estimates, the cost of crime was about 60 billion sterling in 2000 in the United Kingdom; unfortunately, since 2000, neither crime rates nor the economic cost of crime to society have not decreased so. In 2009, the crime cost to the United Kingdom increased to 78 billion sterling, which signifies a burden of almost three thousand sterling imposed on every British home (Kagiticbasi, 1970).

Similarly to United Kingdom, the United States is suffering from the effects of crimes delinquency and is losing billions of dollars in its fight against these crimes. In 2000, the U.S. spent approximately the following amounts in its crime fighting efforts: \$36 billion for cocaine, \$11 billion for marijuana, \$10 billion for heroin, \$5.4 billion for methamphetamine, and \$2.4 billion for other illegal substances (Inciardi, 2002; ONDCP, 2002, 2003). According to statistics, there were over 23 million criminal offences committed in 2007 in the United States (McCollister et al.). National data show that approximately 260 metric tons of cocaine and 13.3 metric tons of heroin were consumed by American drug users in 2000 (Inciardi, 2002; ONDCP, 2002, 2003).

Delinquency and Drug prevalence in the world

Even though certain specific crime rates have been decreasing in some countries, crime is one of the important issues which needs to be taken care of by governments; in fact, statistics show that violent crime rates are on the rise in some European countries (Kagiticbasi, 1970). While violent and drug related crimes increased between 2000 and 2007 in Europe, robbery, domestic burglary, homicide and motor vehicle theft rates decreased throughout Europe (Yagmurlu & Sanson, 2009). For example, between 1997 and 2008 violent crimes increased from 347,064 to 1,034,972 in England and Wales; and from 8,251 to

32,694 in Northern Ireland (UK), which means that violent crimes almost tripled in the span of 10 years within the region.

The illicit drug problem, unfortunately, became a phenomenon throughout the world and it is spreading very fast (Kinlock & Gordon, 2006; Lindesmith, 1938). According to estimates, 5 percent of the world population consists of heavy drug users—mainly people between the ages of 15 and 64 years—and approximately 200 million people reportedly use drugs every year (UNODC, 2007). Since 2003, drug use has increased by almost 8 percent throughout the world.

According to researchers, cannabis is the most prevalent drug and is consumed by almost 80 percent of drug users. Opiates and their derivatives are used by 8 percent of all reported drug users and cocaine follows at 7 percent (UNODC, 2005, 2007). Additionally, statistics show that there are almost two million people who are consuming different types of drugs in European Union countries (Currie, 1994; EMCDDA, 2005).

The most dangerous drug of the world, heroin, is consumed approximately by 11 million users throughout the world (TUIK, 2011; UNODC, 2007, 2008a). A majority of overdose deaths occur because of heroin consumption and the treatment facilities more likely chosen by heroin addicts. Statistics show that 4 percent of deaths occur because of drug consumption and 3 out of every 4 deaths are caused by heroin consumption (Schönpflug, Silbereisen, & Schulz-Hennig, 1987; TUIK, 2011). Moreover, heroin users are more likely at risk of HIV and other diseases which spread via needle use/sharing as opposed to the types of drugs that do not require injection of the substance. The annual heroin market value is approximately 65 billion dollars throughout the world and almost \$55 billion of this money comes from Afghanistan where most opium cultivation occurs (TUIK, 2011; UNODC, 2007, 2008b, 2008c). On the other hand, according to statistics, there are over than 1 million but less than 1.5 million opioid users in Europe (Schönpflug et al., 1987).

According to UNODC, there are approximately 17 million cocaine users throughout the world and with 47 percent consumption North America is the biggest market while with 39 percent

consumption Europe is rated the second market for cocaine. Furthermore, the illicit trafficking worth of cocaine is 88 billion dollars per year (TUIK, 2011). However, cocaine consumption is declining every year in the US, while the market is expanding into Europe. On the other hand, cocaine has been consumed by approximately 14 million Europeans at least once, which rate is equal to almost 4.1 percent of the European population. Furthermore, just last year 4 million Europeans experienced cocaine (Schönpflug et al., 1987). After cannabis, cocaine is the second most used drug in Europe. Drug treatment programs show that heroin users are the most prevalent group who resort to drug treatment programs and cocaine users rank second among those who apply to participate in treatment programs (Schönpflug et al., 1987; UNODC, 2003, 2007).

The most widespread drug in the world, cannabis was used by approximately 161 million people throughout the world in 2003. According to statistics, cannabis use increased across 66 percent of the world in 2001. However, like cocaine, cannabis use has declined in the US in comparison to previous years. (Bree & Pickworth, 2005; UNODC, 2003, 2007). Cannabis has been consumed by approximately 75.5 million people throughout Europe as a lifetime experience, which rate is almost equal to 22.5 percent of Europeans, between the ages of 15 and 64 years (Oksal, 2008; Schönpflug et al., 1987). However, when this drug is consumed as a lifetime experience, this is indicative of the fact that it is mostly consumed by individuals who are between 15 and 34 years old. Last year, consumption of cannabis peaked among individuals between the ages of 15 and 24 years (Schönpflug et al., 1987).

The fastest spreading drugs, synthetic drugs, are becoming a serious problem not only for Turkey and surrounding regions but also for rest of the world. According to statistics, the use of synthetic drugs, such as amphetamines and ecstasy, has increased by 90 percent throughout the world in recent years. Studies have shown that there are 26 million people using amphetamines, approximately 8 million of whom are ecstasy users. At the beginning of the year 2000, amphetamine use declined in the US (UNODC, 2003, 2007). However, while amphetamine use was declining in the US, ecstasy use in Europe increased from 1999 through 2003 (UNODC, 2005). Statistics also show that ecstasy has been tried at least once

by 11 million Europeans who represent 3.3 percent of the European population; a one-time minimum amphetamine use was attributed to 12 million Europeans, a rate equal to 3.7 percent of European adults. While 2.5 million Europeans experienced ecstasy last year, a rate equal to 0.8 percent of the European adult population, approximately 2 million European adults consumed amphetamines last year (Schönpflug et al., 1987)

Heroin use has serious consequences for the human body and increase the risk of mortality. A 33 year longitudinal study among 581 heroin users showed that from 1962 to 1997, 284 of subjects lost their lives for various reasons. During the 33 year period, almost 22 percent of subjects lost their lives because of a drug overdose— 45 of these were heroin users and 16 were users of various drugs and died of accidental poisoning; slightly over 15 percent of them lost their lives because of chronic liver disease, almost 12 percent died because of cardiovascular disease and almost 20 percent committed suicide, were victims of a homicide or had an accident (Hser et al., 2001).

Statement of the Problem

Crime rates have been low in Turkey when compared to the rates in the United States and other western countries. The main reason why crime rates are lower in Turkey can be explained with the socio-cultural structure of Turkish society, the family structure, and religious affiliation among Turkish citizens. However, in recent years, there has been a significant increase in both delinquency and drug use. Globalizing and interaction with western societies has altered the traditional Turkish type family structure. While children used to be more dependent on their families and the classical family tradition, today, youths are more independent and more self-oriented. This decreases the family and environmental control over the adolescent.

Cultural, family and religious differences of Turkey and comparison to Western Culture

Even though there are various criminological theories, social control theory is one of the most appropriate theories that might be applied to Turkish society because family, the institutional structure and cultural values are still overwhelmingly dominant in Turkish society. Turkey, the United States and other western European countries are representative of very different cultural, economic

and social backgrounds. In this perspective, there are numerous studies carried out to investigate how much social control theory explain delinquency and substance use in western cultures; however, unfortunately, there are limited study conducted to understand social control theory on Turkish society and culture.

First of all, it should be said that there are significant differences between Turkish culture and family life style compared to western culture. There might be different reasons why there are significant differences between two cultures, one of which is cultural and religious back groups.

Secondly, Turkey never been occupied by other countries to make changes in their social cultural structure (colonized). Therefore, Turkish culture has never been affected with other countries dominant culture (Schönpflug et al., 1987).

According to current situation, traditional values are still very dominant in the Turkish family and society while individualism and independence are more prevalent in the western societies. For example, 30 year-old adults continue to live with their parents in Turkey without garnering any particular attention or judgment for doing so; however, in the US and other western countries, adolescents who reach 18 years of age are much more likely to leave their homes and live independently. Furthermore, although there are some changes in the Turkish family structures with the advent of globalization, most families are still following the accepted traditions. Turkish children grow up in a particular disciplinary system, which is applied both at home by family members and at school by their teachers. For example, for their inappropriate behaviors children may be punished physically by their parents at home and their teachers at school with the intent of increasing supervision over the children. Meanwhile, their US and European counterparts live under less scrutiny and fear of punishment, which might affect drug use rates (Akciger, 2008).

Family structure

Even though changes coming with globalizations, economy and new regulations, Turkish family structure still keep traditional values in the family such as discipline and patriarchal structure unlike western culture (Vergin, 1985).

According to researchers family is the base of Turkish society. Reliability to family members and close relationship with family members, cultural and religious values and discipline are the most important

instruments to prosecute relation in the family. Males are the dominant group in Turkish families and extended family is welcomed life style for Turkish families (Wasti, Lee, Ashton, & Somer, 2008).

A study which was compared Turkish adolescent to American adolescents showed that Turkish families are more authoritarian than American families. Turkish families raise their children more dependent to their families with close ties to the family while American families raise their children more independent and as individual. Turkish families restrict their children accordance to family rules, which are more likely coming with cultural and religious believes. Therefore, American adolescent have more self-esteem and individualistic character than their Turkish counterparts (R. D. Taylor & Oskay, 1995).

On the other hand study results showed that Turkish families perception regarding to decision making of adolescent children in the family is lower than their German counterparts. In another words, Turkish families less open participation of children in decision making than German families. According to researchers there might be several reasons for such a result. First of all, Turkish adolescent never grows in the eye of their families while German families treat their children more grown and give them more responsibility on their shoulder (Schönpflug et al., 1987).

Study results also showed that there are differences between German and Turkish working class families in terms of decision making in the family. For example, while father is still the dominant figure in Turkish families, mother is observed as determinative member of the family in decision making in the German families (Schönpflug et al., 1987).

Researchers assert that role of each parents and children in the family is appear based on those families cultural perception. Even though other factors, such as economic status, affect those results, families cultural background is the determinative factor in the family roles (Schönpflug et al., 1987)..

One of the most observed behavior in Turkish families is the obedience culture. Families expect obedience from their children in Turkish families. There is also reverse correlation between integration to host culture and obedience expectancies in the family. The more Turkish mother integrated to host culture, the less obedience culture is observed among Turkish mother and children. However, in western culture, for example in Australia, dependence to family is much more

less and the governmental system is created to reduce dependence of family members to each other, which is also related to governmental policies (Yagmurlu & Sanson, 2009).

There is a disciplinary system in the family especially for those who live in rural areas. Those families live as big families with grandparents, parents, children and grandchildren because of economic status. Mostly farms belong to eldest members of the families and every body works grandparents eventually for themselves. Therefore, because of economic dependencies there is hierarchical and disciplinary system in the family. Children who come to 40 ages are still living with the family and might be at the bottom of the chain and command pyramid (Yagmurlu & Sanson, 2009).

On the other hand, verbal communication or expression of feelings in Turkish families, especially in urban based families, is lower than compared western family groups. Nevertheless, family goals are less likely children based (Yagmurlu & Sanson, 2009).

Studies showed that Turkish culture is based on “group-oriented” culture. In another words people who grow in Turkish society are less likely pay attention to privacy than western culture grow people and abide social networks rather than individualism. Even though there is change in Turkish culture in perception of privacy, it is still reflecting old cultural values (Phalet & Claeys, 1993).

A study which was conducted to understand differences between Turkish and American students in terms of understanding of privacy and crowding showed that there is a significant difference between Turkish and American students. Studies showed that American students more likely preferred privacy in their accommodation than Turkish students. According to researchers, there might be two factors effecting understanding of privacy one which is cultural affects and the second is effect of family rising. For example, while most American students grow up in nuclear families, Turkish students grow up in extending families, which effects socialization behavior among family members. During socialization, family members have to deal different personalities in the family which help developing coping mechanism of different characters (Kaya & Weber, 2003).

Another study which was conducted to reveal reasons of migration back to Turkey who had gone to Germany to work once revealed that significant reason of returning back to Turkey are integration problems of those Turkish families to German society and religious behaviors and contradicting of

German life style with their religious beliefs beside other economical and health issues (Razum, Sahin-Hodoglugil, & Polit, 2005).

Traditional family values are still important in Turkish society. Father is the still dominant and active figure in the family. While there is still hierarchal structure of family still continuing (patriarchal) and father is supposed to be major supplier for the family, mother is supposed to support and obey father in the family. The role of gender for the parents is also observed for the family member in Turkish family. For example, while sons or males in the family are less supervised and less controlled, and more independent for their behaviors, daughters or females in the family are strictly controlled and supposed to be more obedient to their parents. Therefore, it would not be bias to say that there is discrimination in Turkish families when gender issues considered. Honor of the family is founded on female virginity and moral ethical standard of the female part of the family (Oksal, 2008).

Father role

In Turkish families fathers are the main dominant member in the family and mostly they give decision in the family without asking other family members. Fathers are unquestionable authority in the family and they are very rigid in the family. When father's authority is questioned in the family, fathers might cut relation with that family member. In one example, one of the family members disobey the father's authority, father did not talk to that member in years. Further, discipline in the family continues after son has his own family and father's dominant behaviors effect son's family. Son and daughter does not smoke while he/she is with his/her father and be careful while he is sitting with his father whether he crosses his legs in the same room (Bradburn, 1963).

Studies showed that role of father are differing in Turkish and American families. While father is seen encouraging factor for the achievement to the boys in American family, it is being seen restraining or controlling factor for the boys in Turkish families which is related, in some cases, with low academic achievement (Bradburn, 1963).

Mother role

Studies which was conducted to understand differences of mother practices between Turkish and German mothers showed that while German mothers desire to raise their children as independent and develop their children coping mechanism in case of problems, Turkish mothers' expectancies

from their children are respect to elders and family members, good behavior and keep close relation with family members (Durgel, Leyendecker, Yagmurlu, & Harwood, 2009).

In the mean time, study results showed that Turkish mothers are very warm to others in the family regardless of their socio-economic status and how much they are integrated to other cultures. Furthermore, Turkish mothers are very keen on to their children irrespectively their educational level. Nevertheless, Turkish mothers who live at abroad and in interaction with wide host groups differing in terms of raising their children compared to those who are in less contact with native culture people (Yagmurlu & Sanson, 2009).

Another result of the study is motivation for obedience in the family. Unlikely to traditional Turkish mother characteristics, Turkish mothers who adopt western culture provide obedience without using punishment. In another words, "Turkish mothers used obedience-demanding behavior rather than punishment to achieve compliance from young children" (Yagmurlu & Sanson, 2009).

Study results showed that mothers have greater explanatory power over children' attitude towards lesbians and gays compared to fathers. According to researchers, the main reason for such a result is related to attachment of children to their mothers. Children spend more and quality time with their mother, which leads children to be affected from their mothers. In the mean time, according to Turkish culture, fathers are supposed to set more distance between themselves and their children compared to their mothers, which cause less affect of fathers on their children (Oksal, 2008).

Modern Turkish family

Even though Turkish family cultural structure has been changing in years, it would not be wrong to say that still traditional cultural values have effect Turkish family structure. According to traditional Turkish family structure, roles of males and females are altering each other. While male children are more relax, there is strict disciplinary system applied to female children such as strictly controlling entering and exiting house. There are several factors causing familial cultural changes such as, socio-economic status of family and educational background (Yagmurlu & Sanson, 2009).

However, Turks living in different countries might have different familial characteristics based on the countries culture where they live (Yagmurlu & Sanson, 2009).

Studies which have been carried out to understand Turkish immigrants in Europe showed that Turkish immigrants are strongly attached to their language (Turkish), religious, cultural behaviors in hosting country (study has been conducted in France, German, Netherlands), Turkish people who are living at abroad did not lose their ethnic specification in multicultural environments. However, education level and level of generation show differences. For example, higher educated and younger generations, who grew up in western countries, are less likely attached to ethnic and Turkish cultural values compared to their ancestors (Schönpflug et al., 1987).

In the mean time, there are some changes in Turkish families' attitudes toward sexual preferences in time. For example, Study which was carried to measure attitudes toward lesbian and gays in Turkish families showed that even though in general Turkish family members are against to such a kind of attitudes in the family, younger generations are more liberal to gay and lesbian relations compared to their elders. According to the study, such attitudes of the families toward gay and lesbian relations is related to religious beliefs because according to Muslim culture such a kind of relation is against to Islamic rules; which has been mostly and deeply accepted by Turkish society. Other supporting results are acquired by other researches which revealed that there is negative correlation between religious belief and gay and lesbian attitudes. When gender differences considered in measurement of attitude toward gay and lesbian relations, it has been observed that females are more tolerated to such a kind of relation compared to their male counterparts in the families. According to researchers, there might be several reasons for such differences. For example, males are the role models and there are more expectations on the male children compared to their female counterparts, such as carrying family name etc. From the reverse perspective, male children feel more responsibility on their shoulders because of their families' expectancies and they confirm with traditional family norms. Therefore, male children more close to their family cultural values because of expectations and the way of how they are grown. However, females are minority groups in terms of both expectations and roles in the family compared to their male counterparts in the family. Therefore, they might be feeling sympathy to gay and lesbians (Oksal, 2008).

As a result, because of cultural, family and religious differences between Turkish and Western culture, such a strong criminological theory should be applied to Turkish society in order to understand whether it has same explanatory power in Turkey where limited study is conducted.

Therefore, the uniqueness of this study is coming from being applied in a region where cultural background and ethnicity are totally different from those of people in other western countries.

Delinquency in Turkey

The statistics of the Justice Ministry in Turkey show that between 2005 and 2008 the “number of cases” increased consistently over the years. For example, while in 2005 there were total of 1,616,620 cases throughout Turkey, in 2008 the number of cases increased to 1,716,821. Furthermore, while in 2005, 2,166,950 people were accused of being involved in delinquency, in 2008 the number increased to 2,311,297 (TUIK, 2011).

However, statistics based on age groups show that age groups are not reflecting similar results. While the number of offenders within the age groups of 12-14 and 15-17 has decreased, the number of offenders within the age group of 18+ has increased between 2005 and 2008. For example, while 36,678 offenders accused of delinquency were between the ages of 12-14 in 2005, the number of offenders in the same age group decreased to 33,573 in 2008. Similarly to the 12-14 age group, the number of adolescent offenders between the age of 15 and 17 was 122,239 in 2005, while it was 76,664 in 2008. On the other hand, the number of offenders in the age group of 18+ was 2,008,033 in 2005, increasing to 2,201,060 in 2008 (TUIK, 2011).

Drug use in Turkey

Until a couple of decades ago, Turkey was always mentioned as a transit country for drug trafficking rather than having drug abuse problems. Turkey is located geographically between drug production countries and their markets, which makes Turkey one of the major hotspots in drug trafficking, and referred to as a place where drug trafficking intensively occurs (Sherman, Gartin, & Buerger, 1989). Turkey’s geographical location has been seen as an opportunity for Turkish criminal organizations to play a major role in coordinating illicit drug trafficking into Europe. Therefore, although drug use is not significantly prevalent in

Turkey, drug related crimes and criminal activities associated with drug trafficking organizations are on the rise.

World globalization has brought new problems to countries such as Turkey. A country that was once isolated from illicit drug problems now experiences a widespread drug subculture that has permeated youth culture. For example, the dance club or night club culture is now connected to synthetic drug using activities. Two dramatic changes have resulted from this new drug culture in Turkey. First, the drug use rate has increased and second, age at onset of drug use has declined among adolescents, which triggers the possibility of passing to more advanced drugs and increases the possibility of involvement in delinquent behavior in further years (Akers, 1991; Kinlock & Gordon, 2006). Today, especially in the larger cities, illicit drug use has become a major phenomenon in Turkish society.

Examination of narcotic crime statistics showed that crime rates have been increasing constantly regardless of age and gender groups. For example, in 2006, 14,653 cases were filed against those who possess and purchase illegal drugs for personal use while the number of accused individuals were 19,673; however, the number of cases amounted to 39,936 and the number of accused individuals increased to 51,673 in 2008. Furthermore, the number of cases filed against those who produce and/or trade illegal drugs were 7,517, while number of accused individuals for the same crime were 16,374 in 2006; however, in 2008, the number of cases increased to 10,025, while the number of accused individuals rose to 23,768 (TUIK, 2011).

According to Corapcioglu and Ogel (2004), lifetime ecstasy use rates increased approximately 25 percent among Turks between 1998 and 2001. Another study conducted by Aytaclara et al. (2003) revealed that almost 20 percent of Turkish males are cannabis users, and slightly more than 10 percent of them are tranquilizer users. Even though drug use in Turkey is more prevalent now than in the past, understanding the dimension of the drug problem is not possible because there is little research available in this area. In fact, there have been no General Population Surveys on drug abuse conducted in Turkey. Whereas there are numerous studies on U.S. drug use, unfortunately, the data are limited

and published literature is sparse on drug use in Turkey is sparse (Aytaclara, Erkirana, Kiriscib, & Tarterb, 2003). Because of the limited research on the situation in Turkey, most of the literature discussed focuses on the United States and European countries.

On the other hand, the United Nations Office on Drugs and Crime report (2003) revealed that heroin use in Turkey either stayed steady or diminished in 2001, while increasing in other western countries. Cocaine use remained stable or declined in both Turkey and European countries. Similarly to the rates in European countries, cannabis use increased in Turkey. Meanwhile, it declined in the US (UNODC, 2003). According to estimates, the number of problematic drug users in Turkey ranges between 21,000 and 51,000. Owing to the fact that there is no national survey to measure the drug consumption rate in Turkey, the ratio of different types of drugs could not be shown in the statistics (Bradburn, 1963).

According to The Constitution of the Republic of Turkish Drug Research Commission Report (2008), slightly over 50 percent of Turkish males and slightly over 16 percent of females smoke cigarettes; while almost 25 percent of males and almost 7 percent of females use alcohol. Furthermore, the study states that deaths caused by drug use will cost approximately \$481,600,000; the cost of addiction and treatment, including economic loss during treatment, will be approximately \$600,350,000 to the Turkish society between 2018 and 2027 (TBMM, 2008).

A study conducted in 15 Turkish cities among adolescents aged between 15 and 17 showed that lifetime marijuana experiences represent a rise to four percent in some cities; however, numerous users who experience marijuana more than 10 times is 0.6 percent. On the other hand, the frequency of heroin use in the last 12 months is up to four percent (Kültegin Ogel, Tamar, Evren, & Çakmak, 2001).

Another study conducted in Istanbul showed that lifetime marijuana experiences in Istanbul have reached almost four percent (Kültegin Ogel, Tamar, Evren, & Çakmak, 2000).

According to Ogel et al. (2003), lifetime ecstasy use ranks at 2.5 percent among secondary school students, and the age of onset of ecstasy use is approximately 13 years old.

Furthermore, the study found that ecstasy use is more prevalent in the western cultural part of Turkey and among those whose economic status is high (K Ogel et al., 2003).

A study conducted among secondary school students in Diyarbakir showed that lifetime drug use ranks at 2.5 percent, and an increase of use at this age increases the risk factor for experiencing heavy drug use. Furthermore, the study shows that males are more likely to use drugs than females, students who have drug user friends are eight times more likely to use drugs, and having peers who experienced drugs increases the risk factor for adolescents; adolescents who smoke cigarettes are almost 13 times more likely to use drugs, alcohol user adolescents are almost 33 times more likely to use drugs, 48 percent of students begin to use drugs because of curiosity, slightly over 41 percent of the students begin to use drugs because of peer pressure, and almost 7 percent of students begin to use drugs because of personal problems (Palanci, 2004).

According to a study which was conducted in six Turkish cities by the European School Survey Project on Alcohol and Other Drugs (ESPAD 2003 report), the rates of Turkish smokers, drinkers, and marijuana and other illegal drug users were determined to be significantly lower than those in other European countries. For example, in this report, alcohol use ranked at 35 percent in Turkey, while average alcohol consumption was 85 percent within all other European countries; marijuana use was found to be at 4 percent in Turkey while average marijuana use was 21 percent among all other European countries; and finally, tranquilizers and sedatives use amounted to 3 percent in Turkey and 7 percent in all other European countries (Björn Hibell et al., 2004).

Purpose of the Study

According to general perception, law enforcement agencies are the only responsible institutions in terms of with the fight against delinquency and illegal substance use; furthermore, it is the main responsibility of law enforcement agencies to take enough precautions before a crime occurs. Nevertheless, with the increase of awareness among social organizations and academics, it has become necessary to share the responsibility of law enforcement agencies in the prevention of crime because there are multiple reasons for

the occurrence of crime, such as economic, social, or perhaps even biological factors related to other organizations other than law enforcement agencies. As a result of this new perception, the prevention of crime is not only law enforcement's responsibility; in fact, it is not only governmental organizations' responsibility but social and private organizations should also take part in these types of studies (McCollister et al.). On the other hand, every part of the problem affects different phases of society and it is related to the study area of different institutions (Shaw, 2002). In order to fully understand the whole problem and develop policies against it, the dimension and motivation, psychological and socio-economic factors must be understood.

In order to find a solution to the problem, the correct measurement elements should be used to understand all perspectives of the problem. However, finding a precise predictor of the problem is not enough by itself; therefore, thorough precautions should be taken (Reiss, 1951).

Describing the problem is the first, essential step toward finding a solution. Both delinquency and drug use are two very important, dramatic problems of the contemporary world. Therefore, this area of research has been investigated by different researchers operating under different criminological theories (Hussong, Curran, Moffitt, Caspi, & Carrig, 2004).

Delinquency and drug abuse in particular is generally considered a result of lack of control at both social and individual levels (Shaw, 2002). On the individual level, the self-control of a person plays the main role, while on the social level, the duties of control are implemented by various social institutions such as family, school, NS religious institutions (Shoemaker, 2000). Actually, the word "control" contains a very broad meaning in terms of the delinquency and drug problem. It can be stated that education, treatment, prevention, deterrence, border control and crop control may account as various types of control (Fraser and Kohlert, 1988).

Among different criminological theories, such as social learning, anomie, subculture, social disorganization, etc., the social control theory is one of the most well-known and accepted

theories. Mainly, the social control theory assumes that all humans are hedonistic and have tendencies to commit criminal acts; however, the bonds of people to conventional social norms, their family, school, peers, the time spent engaged in conventional activities and the fear of losing their possessions prevent them from committing crimes or becoming involved in criminal activities. The most recent developer of social control theory, Travis Hirschi, states that when the bonds of an individual are weakened or broken, the probability of committing crime increases. According to Hirschi, there are four elements of social control which are attachment, involvement, commitment and belief (Hirschi, 1969). Further information and the role of these elements will be discussed in the theory and literature chapters.

The main purpose of this study is to measure social control theory among Turkish drug users and delinquents. So far, there has been limited research to measure social control theory among Turkish delinquents, which makes this study unique. There are two research questions to be answered, which are listed below.

RQ1: How does social control theory explain illegal substance use among Bagcilar high school students?

RQ2: How does social control theory explain delinquency among Bagcilar high school students?

Finding adequate answers to the above questions is the first step towards providing an appropriate response and approach to the delinquency and drug problem in Turkey, and towards creating the best policies against future threats (T. Rhodes et al., 2003).

Defination of Some Terms Used in This Study

There is a need for framework to understand what caunted as delinquency and illegal substance use is in Turkish context. Besides, other terms which has been used in this study has been explained below.

Delinquency

This study has been applied to high school students whose age range between 15 and 18; therefore, instead of criminal behaviour or criminality, delinquency has been used to describe those children`s criminal behaviour, whose age are under 18, unlawful behaviour which is compatible to Turkish penal code.

According to Turkish penal code article 6, section (b): “Any person not attained the age of eighteen is minor”. Further, article 31 arranges penalties which can be given to minor in three different age groups.

For example, Turkish penal code article 31 section (1) says “The children having not attained the full age of twelve on the commission date of the offense, may not have criminal responsibility. Besides, no criminal prosecution may be commenced against such persons; but, it may be deemed necessary to take certain security precautions specific to children.”

Following same article section (2) says: “In case a person who attained the age of twelve but not yet completed the age of fifteen on the commission date of the offense does not have the ability to perceive the legal meaning and consequences of the offense, or to control his actions, he may not have criminal responsibility for such behavior. However, security precautions specific to children may be adopted for such individuals. If a person has the ability to apprehend the offense he has committed or to control his actions relating to this offense, then such person may be sentenced to imprisonment from nine years to twelve years if the offense requires heavy life imprisonment; from seven years to nine years if the offense requires life imprisonment. Two thirds of other punishments is abated and in this case, the imprisonment to be imposed for each offense may not be more than six years.”

Same article section (3) says: “A person who attained the full age of fifteen but not yet completed the age of eighteen on the commission date of the offense is sentenced to imprisonment from fourteen years to twenty years if the offense requires heavy life imprisonment; and from nine years to twelve years if the offense requires life imprisonment. One half of the other punishments is abated and in this case, the imprisonment to be imposed for each offense may not be more than eight years.”

Illegal substance use

Illegal substances production, selling, using and other related behaviours have been forbidden by first in the Turkish Criminal Penal Code Article 13 Section (1), which states that “The Turkish laws are applied in case of commitment of following offences by the citizens or foreigners in a foreign country;” Following same article, section and clause (e) states that “Production and trading of habit-forming drugs or excitant substances (Clause 188), encouragement of use of habitforming drugs or excitant substances (Clause 190).”

According to Turkish Penal Code 188:

“(1) Any person who produces imports or exports addictive or relieving/exciting drugs without license or contrary to the license is punished with imprisonment not less than ten years and also imposes punitive fine up to twenty thousand days.

(2) The executed portion of the punishment imposed at the end of the trial proceeded in a country where the exportation of addictive or relieving drugs is considered as importation of the same in view of other country, is set-off from the punishment to be imposed upon finalization of the trial held in Turkey due to exportation of addictive and relieving drugs.

(3) Any person who sells, supplies, delivers, transports, stores, purchases, accepts or carries addictive or relieving/exciting drugs without license or contrary to the license, is punished with imprisonment from five years to fifteen years and also imposed punitive fine up to twenty days.

(4) In case the offense involves heroin, cocaine, morphine or base-morphine, the punishment to be imposed according to above subsections is increased by one half.

(5) In case of commission of offenses listed in above subsections within the frame of activities of an organized group, the punishment to be imposed according to above subsections is increased by one half.

(6) The provisions of above subsections are applied in every aspect for all kinds of drugs with relieving or exciting affect, of which the production is subject to permission of the competent authorities and the sale is realized under prescription issued by a physician.

(7) Any person who engages in import, sale, purchase, transport, storage or export of any product of which the import and production is subject to permission of the official authorities with the purpose of using this in production of addictive or relieving/exciting drugs is punished with imprisonment not less than four years and also imposed punitive fine up to twenty thousand days.

(8) In case of commission of the offenses mentioned in this article by a physician, dentist, pharmacist, chemist, veterinary, health personnel, laboratory technician, midwife, nurse, dentistry technician, nurse, health personnel or any other person dealing in chemistry or pharmacy; the punishment to be imposed is increased by one half.”

Turkish Penal Code 191 states that:

“(1) Any person who purchases, accepts or carries addictive or relieving/ exciting drugs for use is punished with imprisonment from one year to two years. Any person who grows plants with relieving or exciting affect for his own use is punished according to the provisions of this subsection.

(2) Precautions are imposed for those who use addictive or exciting drugs by forcing them to receive treatment in an institution where all his actions are kept under control (controlled liberty).

(3) A person under treatment or control in a defined institution is obliged to comply with the requirements of the precautions imposed in this institution. A specialist is assigned to guide the person under control in an institution. This specialist explains the harmful affects of the addictive and exciting drugs to the subject person during the implementation period of said precautions.

(4) Precaution seeking control of actions of the addict continues another year as of the termination date of the treatment. The court may adjudicate prolongation of control or observation period. However, this period may not be more than three years.

(5) The punishment imposed on the addict due to purchase, acceptance or carrying of addictive or exciting drugs is executed if failed to act in conformity with the requirements of precautions seeking treatment and control of actions of the addict. If the subject person is allowed to benefit from the provisions relating to sincere repentance, the action filed against him is preceded and punishment is imposed according to the final judgment.”

However, name and list of illegal substances are not limited to only Turkish Penal Code and other national legislations but also Turkey is a party to several international treaties and conventions such as 1961 Single Convention on Narcotic Drugs, 1971 Convention on Psychotropic Substance and 1988 Illicit Traffic in Narcotic Drugs and Psychotropic Substances whose lists are reviewed and renewed in period of time.

Self-report data

Self-report data refers to data collection method where subjects reply survey questions and/or questionnaires by their freewill. Self-report method is required several conditions include providing appropriate circumstances to subjects so that they can give the correct answers to survey question. Therefore, in many cases self-report is criticized by researchers because most time subjects feel responsible or scared of being prosecuted for their in appropriate actions in the past which are stated in the survey or subjects may overstated the behaviours which are asked in the survey and/or questionnaires.

Uniform crime report

Uniform crime report data refers to data which is given by governmental institutions (law enforcement agencies most time) based on complaints come to law enforcement agencies and/or the cases which are intervened by law enforcement agency members and prepared report about it. However, according to researchers, official report data does not reflect the actual statistics because most of problems which might be subject of criminal investigation is not reflected to official channels and solved in both among the parties and/or local groups.

CHAPTER 2: THEORY (SOCIAL CONTROL THEORY)

Introduction

Sutherland defines criminology “as the study of the entire process of law-making, law-breaking and law-enforcing” (as cited in Akers, 2000). This definition captures all major aspects of criminology in an easy and coherent way. Criminology is related to the law-making because especially criminal law requires the knowledge of crime, and criminal behavior. It also entails the study of factors and reasons causing delinquent behavior committed by people from different segments of the society. Finally, criminology deals with the forms and consequences of society’s response to the criminal behavior. This definition also helps to visualize the field and to better grasp the criminological theories.

From this point Akers (2000) broadly classifies criminological theories in two groups: Theories of making and enforcing criminal law and theories of criminal and deviant behavior. The former group of theories deals with the crime and criminal as a construct of the society and the measures to prevent crime and to handle the criminals. The latter group, on the other hand, tries to explain the role of individual and social factors in the variation of criminal behavior. Social control theory falls into the domain of the later group. Within this category social control theory is one of the theories proposing answer to the problem of variations in group rates of crime and deviance.

Social control theory differs from all other theories in the question that it tries to answer. Instead of why men commit crime, social control theory deals with the question of why people do not commit crime. What does make an individual to obey the rules of the society? Social control theory accepts that it is the social control that prevents people from committing crime. Whenever social control weakens or disappears, people begin to commit crime. In that sense, social control theorists assume that people would commit crime if they knew that they would not held accountable for their actions.

In this study, social control theory will be used to explain illegal drug usage among high school students. Therefore, in this chapter social control theory will be presented in detail.

Furthermore, brief comparison of social control theory with other criminological theories will be provided.

Causes of Crime and Substance Use

There are basically two criminological perspectives that explain the association between the individual and delinquency. While some theories try to explain the reasons which lead people to commit a crime, social control theory tries to find the reasons why some people do not engage in delinquent behaviour while others do. In other words, it explores why people obey the rules (J. Lilly, Cullen, & Ball, 2002; Matsueda, 1982; C. Taylor, 2001).

Such perspectives investigate circumstances that surround humans, such as the parental environment where they have been raised, economic status, the school environment, their interaction with/in institutions (such as school), their interaction with their friends and siblings, etc. According to those theories, as a result of any weakness or lack of interaction with an inconvenient environment, an individual becomes involved in delinquent behaviour (J. Lilly et al., 2002).

However, from different perspectives, some theories explore more an interest in crime than criminality; and are concerned with what is happening now rather than what happened in the past and what circumstances or background prepared an individual to commit a crime. According to the said theories, people make their own decisions about whether they are going to commit a crime. People evaluate a current situation, opportunities and their environment; finally, they make their decision as to what they are going to do. Theorists further investigate why people commit a crime at the specific time of occurrence and not at another time. They also explore the motive of crime. One of the theories that looks for the current situation regarding commission of a crime is the “rational choice theory”. According to rational choice theory, people make their own decision based on free will. In social life, people come across opportunities, such as lack of security or easy availability of goods and they make their decision about whether they will steal the goods (J. Lilly et al., 2002).

On the other hand, people commit a crime in order to get huge benefits with little effort. Especially, if they think that there is a low risk of being noticed and arrested, they will be much more daring in committing a crime. After considering the potential seriousness of the consequences of their actions, people decide whether they are going to commit a crime. People's perception regarding to being arrested or punished affects their decision mechanism, which process is referred to as the "perceptual deterrence theory" (J. Lilly et al., 2002; Pratt, Cullen, Blevins, Daigle, & Madensen, 2006; K. R. Williams & Hawkins, 1986).

According to a certain perception, people might engage in the same delinquent behaviour routinely. Furthermore, they find justification for their inappropriate behaviour, and such an attitude has been referred to as "routine activity theory" (L. E. Cohen & Felson, 1979; Eck, 1995; M. Felson, 2009).

As a result of examining the aforementioned four approaches, it can be said that these four theories explore ways to prevent crime (situational crime prevention), rather than understand the reasons for and causes of crime. In another words, according to these theorists, by removing the opportunities for committing crime, such as increasing security, etc., delinquency is decreased (J. Lilly et al., 2002).

On the other hand, new studies brought new approaches to the criminological theories. Especially after the 1980's, new criminologists thought that the prevalent criminological theories were insufficient and under the effect of political approaches. The new criminological approach is affected by Marxist theory. This is in opposition to the prevalent criminological theories, which are influenced by the capitalist system and ideology. In fact, the current system is set up to benefit the dominant economic class and ideology, and current laws serve the interests of this class, as well as protect it. Furthermore, the Marxist concept claims that the dominant social class declares others, who contradict this class, as criminal (J. Lilly et al., 2002; Young, 1988).

In this context, Marxist based theories accused the prevalent crime theories of taking the side of the capitalist system and to be part of the crime issue instead of being understanding

and being the solution of the crime problem. Furthermore, some theorists have asserted that conventional theorists accept the current rules without questioning them, and focus more on the “biological, physical and social factors” that drive people to commit a crime, rather than consider the possibility of the system being itself a creator of criminals and crime (J. Lilly et al., 2002; Young, 1988; Young & Walton, 1998).

Based on these thoughts, some criminologists have claimed that, until the recent decade, criminology was not representing postmodernism. Truth is controversial and directed thinking because it is not questioned in the perspective of postmodernism before it has been accepted. There is no certain clue if the foregoing is right, and if there might be alternative truths, or whether indeed truths can be found by criticism. From this point of view, new criminology theories have approached crime and deviance more from a humanity perspective. In other words, new criminology theories focus on both the corrupt and incorrupt side of society. Furthermore, new criminologists draw attention that rules and criminality are dictated by the dominant groups of society to protect themselves from others, and the general society tries to explain laws and criminality from their perspectives. Some researchers even go further with the extreme approach, with which they imply that describing crime under the influence of dominant groups constitutes a violation of human rights (J. Lilly et al., 2002; Young, 1988; Young & Walton, 1998).

In further development of new criminology theories, researchers have claimed that while criminal theories blame criminals, the role of victims in criminality has been ignored, that is, one leg in the overall triangle relation of crime offender, state and victim. In this perspective, new criminology differed from cultural criminology and was called “left realism” (Gamble, 1988; J. R. Lilly, Ball, & Cullen, 2010)

During the economic deprivation in the world, Left realism focused on how much crime affects the working class, rather than causation of crime. However, it should be said that causation of crime is not totally ignored in realist theory, albeit not emphasized as in conventional crime theories. Mainly, the focus area of left realism is the victim and openness to be a victim. According to left realists, economic and social deprivation makes working and

the white color class vulnerable to criminals as victims. From the humanitarian perspective, left realists have offered soft punishment for victimless crimes, especially for everyday crimes, soft drug use, etc. (Gamble, 1988; Young, 1986; Young & Walton, 1998).

From this new approach, especially in Britain, new political approaches were applied to western societies. In some countries, soft drug use was legalized. For example, in the Netherlands, electronic monitoring began to be applied to some criminals. However, in Britain, left realism did not last long. During the Tony Blair era, a “tough decision” was made and because of budget issues, the left realism approach was compromised. Therefore, it would be true to say that the realist approach could not be fully applied in any country (Gamble, 1988; J. Lilly et al., 2002).

Another criminological theory, which comes with economic and social deprivation in the West, is “Cultural Criminology”. This took its place under the new criminology umbrella. According to cultural criminology researchers, there is no precise meaning of crime and criminology, which everybody agreed on. Rather, the definition of crime and criminality is constantly changing in accordance to newspapers, researchers, politicians, and others. However, what we call crime is not limited to the consequences of unlawful behaviour. It is more than the consideration of criminal codes but includes an “illicit subculture” based on our out-of-control behaviours and, mainly, this is the core of what cultural criminology has founded. Therefore, cultural criminology focuses on the way crime occurs, the type of crime, the motivation for crime, changing environmental factors and the control mechanism of preventing crime—rather than “pedantic, tedious, apolitical, and decontextualized” old criminology, which is limited and rigid. Cultural theory draws out both interpersonal relations and the relation of persons with society. Without the limitations of old theories, cultural theory’s main interest investigates new approaches of people toward changing new conditions and circumstances (S. Cohen, 2002; Ferrell & Sanders, 1995; Hebdige, 2007; J. R. Lilly et al., 2010; Morrison & Presdee, 2004; O’Brien, 2005).

In this chapter, the author attempts to picture the different approaches to crime and causation of criminality all the way from the early perspectives to contemporary

understanding on the subject. Especially, the evaluation of crime and criminality has changed and will certainly change further in time. These changes are related to social-economic changes. The efforts to provide the healthiest and most secure society are never-ending and scholars will continue to devise new theories and approaches to find the best solution to counter crime and criminality.

On the other hand, there will always be controversy whether old or new theories are applied as solutions within a society and environment. For example, while one theory is going to be seen as a remedy for one society, it is not going to work for another society. Therefore, crime theories will be tested in different societies and in each case, different results are acquired.

In this context, Turkish and Western cultures are coming from very different cultural backgrounds and religious beliefs, which affect both societies differently. The diversity between two societies begins at the micro level, such as family life, and spreads to the macro level, such as social life. Unfortunately, there are limited studies to investigate both cultures' differences. In our case, consistent with the social studies, there are limited studies that make a comparison between both cultures from a criminological perspective.

So far, limited studies have shown that even though some changes have occurred in Turkish family dynamics during globalization, the traditional Turkish family structure is still dominant among Turks, whose culture is patriarchal, based on discipline, and forces members of society to obey religious beliefs and institutions.

However, on the other hand, it should be emphasized that the secondary data used in this thesis is limited to measuring conventional or traditional theories, rather than new criminological theories.

Therefore, as one of the strongest theories that focus mainly on family and the attachment of individuals to institutions and religious beliefs, social control theory has been used in this thesis.

Like every other society, Turkish society has rules to provide social order and it is expected that people obey those rules. By means of social control, the society we live in thus forces us to conform to its rules and stops us from committing crime. Lack of sufficient social control in a society creates opportunities for breaking these rules and makes us vulnerable to committing a crime (Akers, 2000). Social control theory emphasizes that committing a crime is the nature of human beings; therefore, beyond researching the reasons for committing crime, the reasons which prevent people from committing crime should be highlighted (M. Junger & Marshall, 1997; T. Thornberry, Lizotte, Krohn, & Farnworth, 1991; Wiatrowski, Griswold, & Roberts, 1981).

This chapter has shown the differences between social control theory and other criminological theories, as well as explore the roots of social control theory, which is one of the backbones of criminological theories. The evaluation of social control theory will also be discussed further on.

Early control theories

Durkheim's Social Control Theory

At the end of the 19th and the beginning of the 20th centuries, society showed dramatic changes. From traditional families and lifestyle, people passed to the city lifestyle, which introduced working class values, individualism and core family, consisting of the father, mother and children. During this era, some social researchers, such as Marx and Engel, emphasized the importance of economical power and capitalism. However, Durkheim totally rejected the idea that “capitalism is the foundation of society”. Rather, he emphasized the importance of social unity and moral values of society. According to Durkheim, social unity could be provided by integration and conformity to the social norms which require acceptance of societal regulations. Integration could be achieved through obeying the norms of the dominant group's values in society, and this way individual are restrained from breaking social norms. In some cases, people might see some norms as being non-essential or unnecessary, and it is at this point that they break their ties with social norms and delinquency occurs (J. Lilly et al., 2002).

As the earliest known social control theorist in contemporary science, Durkheim claimed that delinquency will always exist and it is normal to see deviant behavior in a society. He further claimed that societies devoid of deviant acts are not normal. Deviant behaviors create balance in society and help to develop social order. The response levels to deviant behavior change based on the seriousness of the acts, and these range from disapproval to legal sanctions. The deviant behaviors help society to learn what is appropriate or not. According to Durkheim, even in societies without crime, such as a “society of saints”, there will also be crime but not in the sense of the kind of crime we see today. In those kinds of societies, expectations will be high: for example, perhaps having a meal without paying will be seen as a crime and as endangering the social order because of these high expectations. In normal social life, associations between individuals and crime are well defined. However, in such societies relations begin to get worse because of the perception of crime. Again according to Durkheim, all these processes cause an increase in delinquency and suicides in society (J. Lilly et al., 2002; F. P. Williams & McShane, 1994).

Reiss’ and Nye’s Theories of Internal and External controls

Social control proposes that control of human beings occurs both internally and externally. Individuals either control themselves from engaging in delinquent behavior and/or external factors keep them away from engaging in such behavior via rewards granted for obeying social rules or punishments allotted for deviant behaviors. One of the pioneers of social control theory, Albert J Reiss, claims that persons commit a crime because they lose “personal” or “social” control on themselves. Later, Nye developed this theory by claiming that people have “direct”, “indirect” and “internal” control. Direct control assumes that people are punished for their misbehaviors or rewarded for their obedience by their families. The control of an individual can be applied by legal endorsements. “Indirect control” assumes that people stay away from delinquent behavior because every inconvenient behavior causes their families or people who love them suffer. This type of control can be applied via informal sanctions such as losing others’ love or trust. Internal control assumes that feelings of guilt prevent them from engaging in delinquent behavior.

However, in his studies Nye saw that family relations are not that simple. For example, broken families, relationships between family members such as the mother and father, parental supervision, family values and cultural differences between generations have different effects in terms of affecting the relation between families and individuals. Not all variables have the same effect among all families (Akers, 2000).

Reckless' containment theory

In the same period, Walter Reckless developed the containment theory. Reckless used the same concept as Nye and emphasized the importance of internal and external containment to prevent one from committing crime (Akers, 2000; F. P. Williams & McShane, 1994). However, he added new concepts to his theory—namely, “pull” and “push”. According to Reckless, there are internal and external factors such as lack of opportunity, low income, and aggressiveness, among others, which pull and push people to commit a crime while some inner and outer factors restrain them from committing crime as a form of containment. The latter might be internal or external, one's conscience or family/school supervision. The strength of push/pull factors or containment effects will result in either the commission of a crime or the person's refraining from it. When outer containment is weak, inner containment should be strong in order to prevent people from committing crime; this is called “self concept”. According to Reckless and his colleagues, good self concept is acquired during socialization during the early ages within the family. Reckless et al. applied their study in a region where delinquent behavior was more prevalent, and the researchers claimed that 12-year-old children who had a bad self concept were more likely to commit a crime and be arrested for it. Furthermore, they claimed that their theory proved empirical validity; in fact, their application measured only the outer push and pull versus inner control. However, they did not measure outer pressure versus outer containment and inner pressure versus inner containment (Akers, 2000; F. P. Williams & McShane, 1994).

Sykes and Matza: Techniques of Neutralization and Drift

Opposing Albert Cohen's subcultural theory in “technique of neutralization”, Sykes and Matza claimed that, including deviants, every social group has a tie with the prevalent values

of society. Deviant groups do not totally reject social values; however, they use the “technique of neutralization” in order to release themselves from obeying rules and they commit a crime (Akers, 2000; F. P. Williams & McShane, 1994). There are five ways of neutralization, which are “denial of responsibility” (meaning, “I did not mean to it”), “denial of injury” (meaning, “I did not really hurt anybody”), “denial of the victim” (meaning, “they had it coming to them”), “condemnation of the condemners” (meaning, “everybody is picking on me”) and “appeal to higher loyalties” (meaning, “I did not do it for myself”) (F. P. Williams & McShane, 1994). Therefore, neutralization seems to weaken or break the tie of inner control towards social norms (Akers, 2000).

Neutralization techniques

Contrary to general belief, delinquents are accepting of moral norms. Studies showed that even though some minor group’s ethical norms are in contradiction to the dominant culture’s moral norm, most delinquents share the same moral norms as the dominant culture. However, when it comes to action, there are huge differences between delinquents’ behavioral norms and society’s behavioral norms. Delinquents claim that they are less diverted from their delinquent peers. Therefore, delinquents see themselves as conforming to the moral norms. On the other hand, they are influenced by their delinquent peers and they think that what the latter do is done by everyone else—this is how they find a logical answer for their delinquent behavior (Buffalo & Rodgers, 1971).

Studies show that even though a minority of criminals believe they act in accordance to the norms of small societies, most criminals believe they act in accordance to the social norms of the dominant culture (Buffalo & Rodgers, 1971).

According to researchers, people are aware of and somehow are tied to those rules. However, they find that the “neutralization technique” breaks the chain (Landsheer & Harm, 1999). Social control theorists believe that the strength of bonds to the social norms prevent people from using the neutralization technique and committing crime. In fact, if there is weakening at the bonds that link an individual to the norms of society, the person becomes

more vulnerable to use the neutralization technique and thus becomes a delinquent (Hirschi, 1969).

Those who believe in a “denial of responsibility” say that delinquency that occurs out of one’s control may be caused because of one’s environment, such as the peers, family, and related factors (Hirschi, 1969).

Delinquents also might say that as a result of delinquency no one has been seriously injured, which is called a “denial of injury”. A believer of this idea claims that there is no sufferer from the actions of delinquency. Study results show that those people who share this feeling are more likely to become involved in delinquent behavior (Hirschi, 1969).

Those who use the denial of the victim neutralization technique believe that the one who suffered the crime deserves what happened to them. For example, if the homeowner left the key outside of the door, he/she does not have right to complain if burglary happens. Although Hirschi could not find enough support for this neutralization technique, he did not dismiss it at all (Hirschi, 1969).

As will be discussed below, the idea condemnation of the condemners signifies that someone who condemns an individual has no right to do so. Therefore, delinquents accuse authorities for their illicit actions. A police officer is accused of dishonesty, violence and unfairness or teachers and parents are found guilty of various crimes against children, such as violence or other abuse against children. For example, while people are condemning dogfights because these are violent and enact laws against such kind of activity, they do not take any precaution against boxing. This type of neutralization, in fact, can be related also to the attachment to those institutions or people. Hirschi also found a strong relation between this neutralization technique and delinquency (Hirschi, 1969). On the other hand, there is also a negative correlation between attachment to conventional institutions and having delinquent peers or being affected by negative behaviors or images. Youths who have strong ties with institutions embrace conventional values better than their counterparts and can for

the most part resist these negative environments and influences (Erickson, Crosnoe, & Dornbusch, 2000).

For example, a study which was conducted among 1093 high school students in six high schools showed that involvement in delinquent behavior increases defensive behavior for delinquency but decreases the attachment to conventional beliefs and religiosity (Benda, 1997).

Hirschi's Social Bonding Theory

Hirschi did not accept the “techniques of neutralization”, which assume a way of breaking from strong conventional social norms. Hirschi believed that people commit a crime because of the weak ties between individuals and social norms. Social bonding theory claims that people commit a crime because of weak or broken bonds of individuals with society. According to Hirschi, four elements provide a sense of control for people that restrains them from committing crime. These are attachment, involvement, commitment, and belief. The remarkable side of social bonding theory is that it can be applied to all types of crimes and delinquent acts. The strength of the presence of these four elements is that they result in the decrease of the tendency to commit crime; while the weakness of these elements increases the probability of committing crime (Akers, 2000; Hirschi, 1969; Paternoster, Saltzman, Waldo, & Chiricos, 1982; T. Thornberry et al., 1991; Vakalahi, 2001; Wiatrowski et al., 1981; F. P. Williams & McShane, 1994).

Attachment

Attachment addresses the ties between an individual and his family, peers, school, teachers or others who they admire (Hindelang, 1973; T. Thornberry et al., 1991; Vakalahi, 2001). People try to emulate those they admire. Therefore, if an individual has a stronger bond to criminal parents or peers than noncriminal friends and peers, he/she is more likely to become deviant; or vice versa, if an individual has a stronger bond with non criminal parents or peers, he/she is less likely to be deviant (Paternoster et al., 1982). Furthermore, Hirschi stresses that attachment is stronger than self-control because self-control is not an objective

criterion, and it changes from one family to other or from one society to others (Akers, 2000; Hirschi, 1969; Wiatrowski et al., 1981). Attachment to family is assessed by looking at the relations and communication between an individual and their family (Paternoster et al., 1982), at the supervision and discipline of the family, and at whether an individual would like to emulate his or her parents; attachment to school is assessed by looking at the success of the individual in school, how much individual likes school and his/her teachers, and the level of acceptance of school authority; attachment to peers is measured by looking at the time spent with peers, the closeness of the individual with his/her peers, and the acceptance of peers' ideas (Akers, 2000).

Commitment

Commitment addresses goals, investments and the validation of people, such as high salary, wealth, a good marriage, high social status, a good reputation, etc. The more people have assets, meaning the more they have to lose, the less they become involved in delinquent behavior (Akers, 2000; Hindelang, 1973; Hirschi, 1969; M. Junger & Marshall, 1997; Krohn & Massey, 1980b; Matsueda, 1982; Paternoster et al., 1982; C. Taylor, 2001; T. Thornberry et al., 1991; Vakalahi, 2001; Wiatrowski et al., 1981; F. P. Williams & McShane, 1994). Moreover, commitment is assessed by looking at the future life expectancy and the goals of individual (Akers, 2000; M. Junger & Marshall, 1997; Paternoster et al., 1982).

Involvement

Involvement addresses time which is spent in legal and conventional activities—for example, doing homework, joining a sports team, engaging in social activities in the school or community. The more the individual spends time participating in such activities, the less time he/she has to engage in illegal activities (Akers, 2000; Hindelang, 1973; Hirschi, 1969; M. Junger & Marshall, 1997; Matsueda, 1982; Paternoster et al., 1982; C. Taylor, 2001; T. Thornberry et al., 1991; Vakalahi, 2001; Wiatrowski et al., 1981; F. P. Williams & McShane, 1994). Involvement is measured by looking how much time individuals spend doing their homework, or participating in sport activities, social activities, working hours, and hobbies (Akers, 2000; Paternoster et al., 1982).

Belief

Finally, belief addresses the moral values of individuals (Hindelang, 1973; Krohn & Massey, 1980b; Paternoster et al., 1982; C. Taylor, 2001; T. Thornberry et al., 1991; Vakalahi, 2001). Although some values differ from one society to another, some norms are accepted as such in all cultures, such as, for example, not to steal, not telling lies, etc. A break of ties between an individual and moral values increases the probability of that individual committing a crime or becoming involved in criminal activities (Akers, 2000; Hirschi, 1969; Wiatrowski et al., 1981). Belief is assessed by looking at the respect an individual has toward the criminal justice system, legal authorities and social values (Akers, 2000).

Weakness and strength of social control theory

According to researchers, social control theory is one of the strongest criminological theories in existence. In fact, prior studies show that Hirschi's social control theory has more empirical validity than the subculture and differential association theories. However, Agnew (1991) claims that the explanatory power of the social control theory on delinquency has been exaggerated by previous researchers due to methodological mistakes. According to Agnew (1991), the majority of social control theory studies conducted were based on cross sectional data but not longitudinal data (Agnew, 1991). In his study, Matsueda (1982) found that social control theory can explain less than one fourth of delinquency.

Wiatrowski et al. (1981) criticize several aspects of social control theory. First, Hirschi's model does not give enough credit to the effect of socio-economic status and the characteristics of drug users such as age, gender, education level, etc., in the context of the control mechanism pertaining to the prevention of preventing drug use or the commission of a crime. According to Wiatrowski (1981), Hirschi mentions about those variables but sees them as intervening factors (Wiatrowski et al., 1981). Wadsworth (2000) says that there may be either no or a weak relation between delinquency and socio-economic status (SES). From another perspective, SES variables may not be well selected to reveal the causal relation of the dependent variable (Wadsworth, 2000). Agnew (1991) further claimed that social control theory might explain some but not all delinquent behaviors and social control theory might

explain delinquency in certain, but not all, ages (Agnew, 1991). For example, a study conducted by Agnew (1991), based on the National Youth Survey which was conducted among 11 to 17 year old children, showed that there is a weak or no correlation between social control elements and delinquency (Agnew, 1991).

Second, the theory does not adequately emphasize the socialization of human beings. Third, humans experience more bonds than the stated four elements but the theory is limited to bonds in the context of these four elements (Wiatrowski et al., 1981).

Taylor (2001) also says that social control theory might explain the relation between the individual and delinquency; however, it cannot explain the motive of crime (C. Taylor, 2001).

According to Aker (2000), Hirschi claims that weak or broken attachments to family and peers causes delinquency; however, researches show that while the attachment to conventional peers and family decreases risk of participation in delinquent behavior, attachments to unconventional family and peers increase the risk of participation in delinquent behavior (Akers, 2000). Although the theory emphasizes attachment to peers, it does not give enough credit to effect of delinquent peers in the explanation of delinquency (T. Thornberry et al., 1991). In his later studies, Hirschi mentioned effect of delinquent peers and measured elements of social control theory (Matsueda, 1982).

It is still under discussion whether social control theory can adequately explain the various types of delinquency ranging from status offences to serious delinquency. According to some researchers, social control theory has less explanatory power for serious delinquency when compared to drug offenses and status offences (M. Junger & Marshall, 1997; Krohn & Massey, 1980b).

Although social control theory is generally accepted by most theorists, some researchers find this theory to be defective because social control theory does not determine the bidirectional relation between social control elements and delinquency. In another words, social control theory only investigates the effect of social control theory elements on

delinquency; however, the effect of delinquency on social control elements are not investigated via this theory (Downs, Robertson, & Harrison, 1997; T. Thornberry et al., 1991).

Hirschi (1969) claims that the four elements of social control theory are linked. If one of these elements is weak or broken, the other elements will also become weak or broken sooner or later (Akers, 2000; Hirschi, 1969; Krohn & Massey, 1980b). However, in his study, Hirschi (1969) cannot explain the association between the individual and delinquency by using the four elements together. Therefore, in his study, Hirschi paired attachment and commitment; commitment and involvement; and attachment and belief, instead of pairing, for example, commitment and belief.

Finally, Hirschi (1969) does not mention the effect of religiosity on delinquency in his original study; however, later studies conducted by other researchers show that there is a negative correlation between attachment, involvement, commitment to religion and delinquency (Akers, 2000).

Summary

In this chapter, different approaching perspectives of causation of crime have been explained. According to researchers, while some criminological theories investigate the reasons which lead people to commit a crime and illegal substance use, others research the factors which prevent people to commit a crime or illegal substance use.

From this perspective, contemporary criminological crime theories such as cultural, realist and situational crime prevention are briefly explained and the reason why social control theory, one of the most accepted theories, used in this thesis is rationalized.

As a next step, historical background of social control theory explained from early stages to latest version. Different versions of social control theory and alteration of social control theory in time was explored.

At the final stage of the chapter, weakness and strength of social control theory has been explained based on prior researches.

CHAPTER 3: LITERATURE REVIEW

Introduction

As we saw in the previous chapter Travis Hirschi argues that social bonds prevent people from breaking the law. Hirschi calls these bonds as attachment, commitment, involvement and belief. Attachment refers to the individual's bond with other people and institutions. According to Hirschi, strong attachments to positive role-models or institutions keep individuals from committing crime. Similar to that, commitment refers that individual who has engaged more with the society has less chance of committing crime. For example, since a married person has a greater commitment to the society, he would lose more by becoming criminal, and that may keep him from becoming a criminal.

Involvement is associated with the time a person spends on community activities like sports or volunteer work. These activities are assumed to strengthen the individual's bonds with the community and by doing this, decrease the likelihood to commit crime. Finally belief refers to degree individuals believe the norms that the society provides. Loyalty to the positive societal values is thought to keep people away from criminal behavior. As a result, Hirschi explains variation of crime between different societies with the relative strength and weakness of these bonds.

Therefore, this chapter will provide a discussion of previous studies used Hirschi's model to explain delinquency and drug use. Studies are grouped by using Hirschi's social bond elements, and underlying mechanism of committing or not committing crime related to each social bond element also presented. Furthermore, interrelation among social bond elements is investigated to better understand the analytical problems that might arise. Finally, socio-economic variables that may influence the drug use are discussed and important studies related to that also provided in this chapter.

Elements of Social Control Theory

Measuring and understanding the causal relation of delinquency is one of the most difficult parts of criminology. There are various theories and studies that explain the correlation between the individual and delinquency and each one of these approached the issue from

different perspectives. On the other hand, according to researchers, in order to understand the causal relationship, determining which question should be asked is still considered a controversial issue. For example, while strain theorists ask, “Why do people commit a crime?”, social control theorists ask, “Why do some people commit a crime while some other don’t?”. As we investigated literature, other approaches were found to reveal this correlation between the individual and delinquency (J. Lilly et al., 2002).

However, as a subject of this study, social control theory is appointed as one of the strongest theories that exist. For example, a study conducted among 1710 high school students showed that social control theory has more explanatory power than strain theory. According to the study, social control theory could explain 17 percent of assault crimes while strain theory could explain only six percent; similarly, social control theory could explain 29 percent of school delinquency while strain theory could explain 10 percent; and finally, social control theory could explain 13 percent of public disturbance while strain theory could explain only five percent (Özbay, 2008).

Another study conducted among 372 heroin addicts who applied to the treatment program showed that social control theory has a stronger explanatory power than cultural deviance theory for both male and female delinquency (Covington, 1985).

Researchers claim that social control theory has the most explanatory power compared to other criminological theories. For example, a study conducted among 2626 adolescents showed that parental and educational attachment, conventional values and drug using peers are negatively correlated with alcohol, cigarette, marijuana and amphetamine use. Furthermore, study results showed that social control variables can explain up to 50 percent of substance use among adolescents (Marcos, Bahr, & Johnson, 1986).

The explanatory power of the social control theory also shows a variety of factors among different ethnic groups. For example, a study conducted in the Netherlands among four different ethnic groups including Moroccan, Turkis, Surinamese and Dutch youths aged between 12 and 17 years, showed that attachment to and involvement with family and

school are statistically significant and negatively correlated to delinquency. However, the explanatory power of social control elements shows differences among different groups. For example, while the social control elements have a 45 percent explanatory variance for Moroccans, this percentage is at 37 percent for Turks, 45 percent for Surinamese and 49 percent for Dutch youths. Furthermore, religiosity was found to be significant in the measurement of delinquency and a negative correlation is observed here for three ethnic groups, but not for Turks (M Junger & Polder, 1992).

There are too many variables that might effect delinquency among adolescents. Even in the same theory, researchers measured elements of the theory with different variables. As one of the most wide spread criminological theories, social control theory measured factors that affect delinquency under four domains, such as attachment, association, involvement, commitment and belief. Moreover, researchers found a negative correlation between those elements and delinquency. For example, a study that was conducted based on the Youth Transition Survey showed that attachment, involvement, commitment and belief are statistically significant, as well as directly and negatively correlated with delinquency (Wiatrowski et al., 1981). In the study, belief has the strongest explanatory power of up to 59 percent while attachment ranks at 19 percent, commitment at 12 percent and involvement at 16 percent. Over all, social control theory could explain up to 32.5 percent of delinquency (Wiatrowski et al., 1981).

However, even measuring one of the social control elements is becoming complex in some cases. For example, while some researchers emphasize the importance of the family structure in preventing delinquency, other researches emphasize the importance of function (one's role in the family) in the family during the measurement of attachment to family.

Stattin and Keer (2000) measured the relationship between parents and children with parental monitoring, child disclosure, parental socialization, parental control, norm breaking, parent child relation, and family closeness. This example shows how many variables can be used just in the measurement of the relationship between parents and children, as well as the complexity of this relationship.

On the other hand, different studies give different results, which might even vary from those from prior studies. For example, in the measurement of involvement, some researchers claim that engaging in sports activities keeps adolescents away from engaging in delinquent behaviors while others found that engaging in any kind of sports activities increases one's vulnerability of becoming involved with gangs.

Furthermore, each element affects another and the results of different studies might vary. Associating with delinquent peers is an aggregating factor for delinquency among adolescents, but family relations might effect this association with delinquent peers in various ways (Özbay, 2008).

Nevertheless, so far, the vast majority of studies show that there is a negative correlation between social control elements and delinquency. For example, a study conducted among 2918 Dutch youth aged between 12 and 24 shows that attachment to conventional norms has an effect on delinquency. An adolescent who has attachment to conventional values has a lesser likelihood of becoming a delinquent, while one with a weak attachment to conventional values is more likely to be involved in delinquency (Landsheer & Harm, 1999; V. A. Lopez & Emmer, 2000).

A study that was conducted based on the National Longitudinal Survey of Adolescents shows that the strength of family attachment, high GPA and a strong bond to the community are decreasing factors for serious violence among adolescents (McNulty & Bellair, 2003).

A study conducted among Turkish high school students shows that attachment to teachers, respect toward the police, school commitment, family supervision, belief and 7-14 hours spent on homework per week are statistically significant and negatively correlated with assault cases (Ozbay & Ozcan, 2008).

In this chapter, we will try to explain the causal relation under various circumstances and see how variables effect delinquency. Although there are various studies that measured the effect of social control elements on delinquency in both the United States and Europe, there

are limited studies that have focused on Turkey, a country with a totally different culture and geography.

Attachment

According to researchers, no such theory would have the luxury to exclude the importance of attachment to family, school and peers (Cernkovich & Giordano, 1987). So far, most studies show that all three types of attachment have a significant role in predicting and preventing delinquency (Cernkovich & Giordano, 1987).

Social control theory purposes that attachment to family, school and peers decreases the incidence of delinquency. There is a negative correlation between attachment and delinquency (Hindelang, 1973). For example, a study conducted among Mississippi high school students to measure the correlation between carrying a gun and attachment to society and social institutions (such as family and school) shows that students who do not carry a gun have a higher attachment to social institutions and this correlation is significant (May, 1999).

According to a study based on The Richmond Youth Project, and performed among 4075 high school students in Richmond, California, which also reflects Hirschi's data to support social control theory in 1969, attachment to family, school and belief are strong predictors of delinquency, as the earlier studies by Wiatrowski and Anderson (1987) and (Costello & Vowell, 1999) found.

Another study conducted among Iranian drug users and traffickers shows that there is an indirect correlation between attachment and drug involvement (Aliverdinia & Pridemore, 2007).

Attachment to family

Relation between family and delinquency is the subject of a huge amount of study and criminological theories (Cernkovich & Giordano, 1987). Although all criminological theories do not emphasize this factor satisfactorily, attachment to the family is one of the most significant indicators of delinquency among adolescents (Hirschi, 1969). For example,

cultural deviance theory claims that an adolescent who has a weak tie with his/her parents is more likely open to external pressure which might be a form of “criminogenic influence”. However, strain theorists have not given enough credit to attachment to the parents. On the other hand, control theorists assert that attachment to the parents provides a passing of conventional values to the children, which effects delinquency among adolescents (Hirschi, 1969).

Social control theory proposes that there is a positive correlation between family attachment and attachment to conventional values, which prevents an individual from becoming involved in delinquent behavior. In another words, increase of attachment to family strengthen conventional values (Matsueda & Heimer, 1987). Among all the theories which give enough credit to the importance of attachment to the family, social control theory is the strongest one (Juby & Farrington, 2001). Furthermore, social control theory proposes that attachment to parents has a direct effect on delinquency among children (Hirschi, 1969).

According to social control theory, the correlation between an adolescent and delinquency is related to the bond between youth and family. The strength of the bond determines the level of delinquency (Hirschi, 1969). The more the adolescent is attached to his/her parents, the less they become involved in delinquency (Erickson et al., 2000; Matsueda, 1982). In other words, the weakening of the bond between parents and children increases the possibility of an adolescent becoming involved in delinquent behavior (Hirschi, 1969).

Most researchers claim that there is a negative correlation between family attachment and delinquency; this topic is also the subject of delinquency preventive programs (T. Thornberry et al., 1991). Furthermore, the strength of an individual’s bond to family decreases the likelihood of incarceration rate (Hagan, Hewitt, & Alwin, 1979).

As opposed to the positive correlation between family attachment and conventional values, there is a negative correlation between family attachment and both delinquency and substance use—attachment to family and parents decreases delinquency among both

adolescents and adults. Moreover, studies about drug users show that there is a negative correlation between drug use and closeness to family (J. S. Lopez et al., 2001).

So far, various studies have yielded different results with respect to the measurement of the correlation between attachment to family and both delinquency and substance use. While some researchers found a direct correlation between family attachment and delinquency, others found an indirect one; some could not find any correlation at all while others found a positive or negative correlation; yet some found correlation significant while others found weak or no correlation between the two variables.

For example, in his study based on the National Youth Survey, Ford (2005) found that there is a negative, direct and significant correlation between delinquency, marijuana use and family attachment. On the other hand, previous delinquent involvement and substance use decrease family attachment, but increase future delinquency and drug use (Ford, 2005).

A study conducted in New England among 1366 Patriot High School students showed that even though there is a negative correlation between parental attachment and serious delinquency and risky behavior, this correlation is not observed as statistically significant (Booth, Farrell, & Varano, 2008).

The national longitudinal study of adolescent health showed that there is a negative correlation between family factors such as attachment to family, supervision, economic status, structural derogation and marijuana use (Bree & Pickworth, 2005).

Some other studies, also, carried out by different scholars showed that there is a negative and statistically significant correlation between family attachment/parental attachment and delinquency/substance use/serious violence (Galaif, Newcomb, Vega, & Krell, 2007; Paternoster et al., 1982; Rankin & Kern, 1994); Paternoster, et al., 1982; Galaif, Newcomb, Vega, & Krell, 2007; Rankin & Kern, 1994; Alarid, Burton, & Cullen, 2000; McNulty & Bellair, 2003; Agnew, 1991; (Erickson et al., 2000).

However, another study that was conducted among 1459 university students showed that there is not a significant correlation between family attachment and drunk driving. For example, 25 percent of students who have a higher level of attachment to their families are drunk drivers while 28.4 percent of drunk drivers have a low level of attachment to their parents. However, this relationship could not be confirmed with respect to whether they are living with their families or not. For example, 30.6 percent of drunk drivers were living with their families while only 23.7 percent of drunk drivers were living without their families (Durkin, Wolfe, & May, 2007).

According to researchers there might be several explanations for drunk driving. For example, students who live with their parents go out for a night of drinking with their friends; therefore, while they are returning home they are in a state of intoxication. Another explanation is that those students who live with their parents want to obey their parents rules, such as, being at home at a specific time—therefore, they drive a car while under influence of alcohol to be at home on time (Durkin et al., 2007).

There are various operationalization techniques to measure attachment to family (Rankin & Kern, 1994). For example, Hirschi measured attachment from different perspectives and dimensions (Rankin & Kern, 1994), such as, spending time with parents, communication between adolescents and parents, supervision, and explanation of rules in the family (Hirschi, 1969). However, he claimed that not all of these variables have the same amount of strength in preventing delinquency among children. For example, spending time with family keeps children away from delinquent behavior, but it is impossible to be with children round the clock (Hirschi, 1969).

On the other hand, some other researchers measured family attachment according to structure, yet others to function; Hirschi used affectional identification, intimacy of communication and supervision (Hirschi, 1969; Rankin & Kern, 1994); Stattin and Keer (2000) measured the relationship between parents and children with parental monitoring, child disclosure, parental socialization, parental control, norm breaking, parent child relation, and

family closeness; other researchers focused on family size. Every researcher uses a different approach.

Working mechanism of attachment

Children imitate their parents (role model)

Children would like to resemble to their parents in most ways; in fact, parents are role models for their children (Hirschi, 1969; Jenkins, 1997; Rosen, 1985). Social control theory assumes that there is a negative correlation between the eagerness of children to resemble their father and amount of delinquent acts they are involved in. In other words, the more children would like to resemble their father, the less they will become involved in delinquent behavior (Greenberg, 1999; Hirschi, 1969). For example, according to a study conducted by Greenberg (1999), 16 percent of the children who want to resemble their father become involved in two or more delinquent acts while 38 percent of the children who do not want to resemble to their father become involved in at least two delinquent acts. Therefore, children who don't want to resemble their fathers are more than two times likely involve in delinquent act compared to those children who would like to resemble their father (Greenberg, 1999).

Being a role model does not only have an effect on attitudes and behaviors towards delinquency but also increases children's ambition for future education. According to researchers, the parents' education level affects children's motivation positively for further education and if parents have a high level of education, children try to resemble their parents and attempt to be as successful as them. Educated parents' children are more motivated in the school and try to match their parents' success. On the other hand, educated families are more likely to support their children than non-educated families, both physically and concretely, such as giving them enough or adequate material and money, and emotionally, by motivating them to be successful in school. This is a risk reducing factor for children according to social control theory (Jenkins, 1997). For example, a study based on the National Longitudinal Survey of Adolescents shows that living with educated parents

decreases the risk of one becoming involved in serious violent behavior (McNulty & Bellair, 2003).

There is a positive correlation between family status and children's educational status. The higher the family status, the more the children volunteer for further education. In fact, there is a strong positive correlation between the father's and children's education. If the father's education is high, children will be more motivated to pursue higher education. On the other hand, if children of highly educated families cannot continue further education for various reasons such as incapability of academic achievement, the children of those families are more likely to become involved in delinquent behavior than the children from families whose education is not as high as the average. However, the effects of parental pressure might vary according to how well the children doing in school. Among those children whose grades are high, parental pressure decreases the chance of delinquency; while among the children whose grades are low, parental pressure increases the incidence of delinquency (Hirschi, 1969). In fact, according to researchers, there is a negative correlation between parental education and delinquency involvement among adolescents (Demuth & Brown, 2004).

Similarly to the parents' educational level, parents' employment status also affects the children's future in relation to delinquency. Lack of a satisfying employment status of parents causes children to leave home early or families fall apart because children are not content with their parents' efforts. Children accuse their parents of being incapable of supporting their family. Children not only lose their expectations for the future but also, the irregular employment status of the parents increases the vulnerability of children to external factors. Furthermore, the respect of children toward their families will decrease and children will look for another role model for themselves. This process also decreases families' supervision of their children (Wadsworth, 2000).

Both economic and social failures of parents push children to believe that whatever they do or how much they study, they will not have as many opportunities as their counterparts. The children will not continue their education or will delay their plans for the future. On the

other hand, if the children observe that their parents are paid both physically and psychologically for their efforts, children's trust in society increases and conventional values develop. They believe that the more they work, the more they shall receive. However, in the reverse situation, they will lose their social values (Wadsworth, 2000).

If children cannot find an appropriate role model for themselves in the family, they look for external role models other than family members, and these may not be people who represent conventional values. These children might therefore impute delinquency as a role model for themselves. According to researchers, there is a positive correlation between how adolescents see themselves as delinquent and delinquency in general. In another words, the more the adolescent sees himself as a delinquent, the more likely it is that he will become involved in delinquency. Therefore, it is important to find out where the adolescent stands in this spectrum (Heimer & Matsueda, 1994).

Internationalization – Children who do not want to embarrass their parents

Family attachment might show its effect different ways. The strength of attachment might increase or decrease internalization; in fact, children who have a strong attachment to their parents do not want to embarrass their parents with inappropriate behavior, which factor decreases the likelihood of engaging in delinquency (Rosen, 1985).

According to Hirschi (1969), before and after children act in certain ways, they think of their parents' reaction. If there is a good quality communication between children and parents, the children do not want to embarrass their parents, and this keeps them away from inappropriate and unapproved behavior. In the reverse situation, if the relations between the family and the children is not strong enough, children do not give enough credit to the consequences of their behaviors, which might include embarrassing behavior for families (Hirschi, 1969).

Family's structural and functional role

The relationship between the family and delinquency has been measured from two aspects, which are structure and function. Family structure focuses on the physical condition in the family such as family size, lack of parents, and family income; while family function focuses

on psychological conditions such as quality of relations between family members and supervision. Some studies show that family function has a greater effect on delinquency (Voorhis, Cullen, Mathers, & Garner, 1988), while others claim that family structure has a greater effect on delinquency (R. Johnson, 1986; Kierkus & Baer, 2002). Although determining which factor is more important in terms of causing or preventing delinquency remains a controversial topic, various studies show that both have a preventive effect on both delinquency and substance use. For example, a study which was conducted to reveal differences between family structure and family function on delinquency based on samples collected from 152 high school students in a small Midwestern town showed that both family structure and function are correlated with delinquency (Voorhis et al., 1988). In fact, according to researches, we cannot make such a distinction between family structures and function because both are interrelated. Furthermore, Biron and Le Blanc (1977) found that family function such as communication and supervision have a direct effect on home based delinquency while family structure has an indirect effect (Biron & Le Blanc, 1977).

On the other hand, according to some researchers, both family structure and family function show differences in explaining various types of crimes. For example, family status has a greater effect on status offences, such as running away from home, skipping school and disobeying parents; while the relation between family function and violent crimes could not be supported (Voorhis et al., 1988).

Nevertheless, Turner and Barrett (2005) state that family structure and function cannot be predictors for delinquency by themselves. Besides the effect of family structure, stress in the family and association with delinquent peers should be examined in order to fully understand substance use among adolescents (R. Turner & Barrett, 2005).

Furthermore, another study showed that even though family status has a significant effect on delinquency, the effect remains small. Nevertheless, the negative correlation between attachment to family and delinquency is observed (Matsueda & Heimer, 1987).

Family structure

Family structure has been the subject of criminologists' discussions for a long time and researchers believe that it is an essential etiological factor for delinquency (R. Johnson, 1986; Kierkus & Baer, 2002). Contemporary criminologists consistently stress on the importance of family structure in preventing delinquent behavior among adolescents (Kierkus & Baer, 2002). So far, both self and official delinquency report studies found a huge amount of support for the negative relation between family structure and delinquency among adolescents (R. Johnson, 1986; Reiss, 1951).

Family structure has a great effect on school children when it comes to involvement in delinquency. There is a statistically significance correlation between family attachment and minor, serious delinquency and drug use (Sokol-Katz, Dunham, & Zimmerman, 1997).

For example, a study conducted among Mississippi high school students to measure the correlation between carrying a gun and family attachment showed that family structure is negatively and statistically significant correlated with carrying firearms in the school. Students who live with dysfunctional families are more likely to carry firearms than those who are living in intact families (May, 1999).

However, according to researchers, family structure does not have the same amount of effect in all types of crimes. For example, a study conducted among 734 high school students showed that family structure has a higher explanatory power for official troubles than theft, vandalism and violence (R. Johnson, 1986). Voorhis, et al. (1988) found similar results, which show that family structure has more explanatory power on status offences.

Another study based on the Longitudinal South Florida Youth Development Project Study showed that family structure has an indirect effect on minor and serious delinquency and drug use through family attachment (Sokol-Katz et al., 1997). Nevertheless, some other studies found a minimal level direct relation; in fact, an indirect relation was found between family structure and delinquency (Voorhis et al., 1988).

Furthermore, family structure has an effect on friend selection among adolescents. Researchers found an indirect relation between family attachment and delinquency through delinquent peers (Matsueda & Heimer, 1987). For example, a study based on the National Youth Survey among 1725 adolescents showed that children who live in intact families are less likely become a friend with delinquent peers (B. Johnson, Jang, Larson, & De Li, 2001).

Family structure – Lack of parents

Family structure is investigated under several different groups, such as intact, separated, stepmother or stepmother families and children who grow up in foster homes.

Intact family

Most researchers claim that there is a negative and statistically significant correlation between living in an intact family and both delinquency and substance use. For example, a study that was conducted among 3984 adolescents who live in five European cities showed that living in an intact family decreases the incidence of drug use except for alcohol consumption (Takkouche et al., 2002).

In intact families, the burden of children is split between parents and at least one parent spends time with their children; however, in broken families, one of the parents should face difficulties and has to spend time with their children, which is quite a heavy burden. Therefore, children growing in broken homes are less likely to be under supervision and less likely to have both physical and psychological support from their parents, which increases the likelihood of delinquency among school children. However, besides parents, other family members, such as siblings, uncles and aunts might have a role in raising the children (Jenkins, 1997).

According to researchers children who grow up in intact families or are raised by their biological parents are less likely to engage in delinquent behaviors than those who grow up in broken families or are raised by non-biological parents. Therefore, social control theorists emphasize the importance of family intactness to prevent delinquent behavior (Kierkus & Baer, 2002). Furthermore, Turner and Barrett (2005) stress that children who grow up in

intact families have more support than their parents, less family stress or lifetime trauma, and less positive approval for substance use.

Prior studies showed that there is a correlation between an intact family and both delinquency and substance use found a huge amount of support. For example, a study based on the National Longitudinal Survey of Adolescents showed that adolescents who live in intact families are less likely to become involved in serious delinquency compared to others living with single families or non-intact families (McNulty & Bellair, 2003).

A study based on the Longitudinal South Florida Youth Development Project showed that there is a statistically significant positive correlation between attachment to family and family intactness; and a statistically significant negative correlation between intact family and delinquency. However, family attachment is not significant among other types of families such as in a single parent home or stepmother/father families (Sokol-Katz et al., 1997).

Another study conducted among 1803 South Florida adolescents aged are between 18 and 23 showed that children who grow up in intact families are less likely use substances when compared to those who grow up in separated and single parent families. Furthermore, having both parents is a stronger protector from substance use than only having one of the parents (R. Turner & Barrett, 2005).

A study conducted among 228 sixth grade students in New York showed that children who live in single parent homes are more likely to become involved in delinquent and aggressive behavior than intact families (Griffin, Botvin, Scheier, Diaz, & Miller, 2000). Furthermore, the study emphasized that family customs might play an important role in preventing delinquency among adolescents. For example, according to the study, having dinner as a family decreases the risk of involvement in delinquency when compared to the lack of structure in non-intact families. Therefore, researchers concluded that having dinner might be a sign of stable family life, attachment to family customs and a low level of problem behavior in the family (Griffin et al., 2000).

Another study based on by The Cambridge Study in Delinquency, Longitudinal study, among 411 Londoners aged between 8 and 46 showed that almost 30 (29) percent of boys who are from non-intact families were involved in delinquency and convicted when compared to almost 20 (18) percent of boys from intact families, who were involved in delinquent behavior and convicted for same (Juby & Farrington, 2001).

According to a study conducted by Kierkus and Baer (2002) based on a Addiction Research Foundation Ontario Student Drug Use Survey among 3617 samples, children who have an intact family have stronger attachment to their parents; and the study showed that, as stated in social control theory, low attachment to families increases the possibility of one becoming involved in criminal activities. Furthermore, researchers stressed out the importance of supervision over children. According to researchers, intact families conduct more supervision over their children, which reduces the risk of the children engaging in delinquent behavior, while non-intact families have lack of sufficient supervision of their children (Kierkus & Baer, 2002).

Family structure also increases the risk for recidivism. According to Reis, 30.4 percent of the children who live in intact families commit more delinquent acts while 39.1 percent of children who lost at least one of the parents commit more delinquent acts (Reiss, 1951).

Broken family

On the other hand, the children who form part of of disrupted families are more likely behave in a disorderly fashion when compared to intact families' children (Sampson & Groves, 1989). Especially, the effect of non-intact families on delinquency has been claimed by researchers (R. Johnson, 1986). Moreover, according to researchers, early separation and break up in the families has a greater effect than a new separation and break in the families on adolescent delinquency (C. Rebellon, 2002).

Separation between parents increases frustration among children towards their parents, which eventually decreases communication and trust between parents and children.

Furthermore, the effect and control of parents on their children decreases, as well as supervision (Juby & Farrington, 2001).

On the other hand, although it is claimed that broken families can explain minor delinquency better, a study conducted by Rebellon (2002) revealed that there is also an association between children who live in non-intact families and both status offences and serious delinquency; in fact, children who live a long time with step parents are more likely to be associated with violent delinquency.

Even though previous researches claim that living in a broken home increases the likelihood of delinquency between 10 to 15 percent (Wells & Rankin, 1991), a study conducted among 1725 adolescents showed that the effect of a broken home on delinquency is greater than this percentage (C. Rebellon, 2002).

A study based on the National Health Examination Survey revealed that children who live in single parent homes are more likely to have contact with the police, be arrested, smoke regularly and run away from their home, when compared to those who live in an intact family (Dornbusch et al., 1985). According to researchers, the reason for the differences between these two types of families in predicting delinquency could be a lack of a second parent in single parent families (Dornbusch et al., 1985).

A study conducted among 4077 high school students showed that there is a positive correlation between broken homes and delinquency (Austin, 1978).

A study based on the 1995 National Longitudinal Survey of Adolescent Health showed that children who live in intact families have the lowest rate of involvement in delinquency. Following this, single mother/father or step mother/father families gradually have the lowest effect in preventing the involvement in delinquency among adolescents (Demuth & Brown, 2004).

Another study which was conducted to reveal the characteristics of drug users in Hungary showed that family intactness has a great effect on substance use. Even though results are

not statistically significant, children who live in non-intact families are two times more likely to use drugs when compared to their counterparts who live in intact families (Veress, Wheeler, Ramsay, & McMichael, 2004).

However, according to some researchers, children of separated or broken families are treated with prejudice within both educational and judicial institutions because they are profiled as delinquents. Therefore, researchers emphasize the importance of other factors such as schools, and other social institutions (R. Johnson, 1986).

Mother family

According to Hirschi (1969), besides education level and employment status of parents, the role differences between father and mother in the family contributes to the delinquency level of children. It is mostly believed that mothers have a special role in the transition of cultural values to children in the family because children spend most of their time with their mothers; furthermore, mothers have a more intense relation with their children. In fact, social control theory assumes that the transition of moral values and ties between children and parents occur in the first five years of children's lives, and children are more likely spend their first five years with their mothers (Hirschi, 1969). From another perspective, It is very important for children to be raised by their mothers until they reach the age of 3 in terms of development of mother and child involvement (Veress et al., 2004).

For example, a study conducted among 3065 students showed that maternal attachment has a stronger effect than paternal attachment in predicting delinquency (Krohn & Massey, 1980b). A study which was conducted among 3984 adolescents who live in five European cities showed that mothers play a key role in preventing substance use among adolescents (Takkouche et al., 2002).

According to the researchers, the reason for this correlation is attributed to time spent with the children. Researchers claimed that mothers spend more time with their children and supervise them than their fathers (Krohn & Massey, 1980b).

Another study based on the National Youth Survey showed that, even though not in all types of variables, the relation between delinquency and maternal attachment to children is stronger than that with paternal attachment to children. However, the results of regression analysis showed that even though parental attachment prevents an adolescent from engaging in delinquency, the gender of parents is not statistically significant. Furthermore, an association was found between parental attachment and non-serious delinquency, family and serious delinquency but not with property offences. Nevertheless, the number of attachment measurements such as communication and closeness are important factors in the prevention of delinquency (Rankin & Kern, 1994).

Further, a study based on the 1995 National Longitudinal Survey of Adolescent Health showed that the sex of parents is statistically significant in the case of separated families in terms of preventing from delinquency. Adolescents who live in a single mother family are less likely to become involved in delinquency when compared to single father families. Furthermore, adolescents who live in single mother-step father families have a lower delinquency rate than those who are living only in single mother families. According to researchers, the presence of both parents, even though one of them is a step father, increases control over adolescents (Demuth & Brown, 2004).

A mother is more protective than a father in the family. According to a study conducted in London among 411 males aged between 8 and 46, children who have a mother are less likely to become involved in delinquent behavior compared to children who have a father in one parent families. Furthermore, involvement in delinquency rate is the same with children who live with their mother in non-intact families as opposed to intact and harmonious families (Juby & Farrington, 2001).

However, even though some studies claim that girls who live only with their mother are more likely to have problems in school and with the police (R. Johnson, 1986), a study based on Cycle III of the National Health Examination Survey among 7514 subjects showed that children who are living only with their mother are more likely to commit a crime than those who are living with both biological parents, regardless of any gender differences, except for

the act of escaping from home among girls (Dornbusch et al., 1985). Furthermore, other studies claimed that family functioning in single mother families is greater than that in single father families (Demuth & Brown, 2004), and there is a negative correlation between living with one's mother and assault. In other words, living with one's mother is a factor that decreases the likelihood of committing the crime of assault (Ngai & Cheung, 2003). Nevertheless, according to researchers, the reason why delinquency is high among mother-led families might be the absence of a second parent (Dornbusch et al., 1985).

According to a study conducted among 411 males in London, there is a negative relationship between the closeness of an actual guardian to children and delinquency. In other words, if we put in order as a preventive actor in the family, the mother has the strongest preventive factor (as prevention from delinquency) with respect to their children; and the grandmother, father and father with stepmother, as well as other family members and foster homes, follow in this order in the list of preventive factors (Juby & Farrington, 2001).

Stepfather - Stepmother family

Living with a stepmother or stepfather and non-biological parents increases the risk factor for delinquency among children when the situation is compared to that within intact families (Jenkins, 1997). Furthermore, the existence of the father in the family has a limited or no effect in preventing delinquency among adolescents (R. Johnson, 1986).

According to researchers, children who have non biological parents are a more risky group in terms of committing crime and they are more likely to become involved in criminal activities than those who have at least one biological parent. For example, a study conducted among 1891 students who live in the Ontario province showed that children who live with their biological parents are four times less likely to escape from their home when compared to those who are living with non-biological parents (Kierkus & Baer, 2002).

On the other hand, the genders of children who are living with non-biological parents show different reactions in terms of being involved in delinquency. According to researchers, males who are living with non-biological fathers are more likely to become involved in

delinquency when compared to their female counterparts. For example, a study that was conducted among 734 high school students in a large American city showed that male adolescents who are living in a stepfather family are more likely to commit crime than others (R. Johnson, 1986). Furthermore, the researcher claimed that male adolescents who are living in single father families have the greatest involvement in delinquency when compared to other forms of families, such as intact and step mother families (R. Johnson, 1986). However, study results showed that male adolescents are more likely to live with their fathers in separated families (Demuth & Brown, 2004).

According to researchers, the presence of a step parent adds to the risk of involvement in delinquency for males, while the opposite is the case for females. Researchers indicate that supervision on girls might be more hands on (protectiveness) than in the case of boys, even though the father is not the biological father (Dornbusch et al., 1985).

Children who grow up in foster homes or institutions

Besides the effect of living in an intact family and at least one of the biological parents, living or growing up in a foster home or an institution has a positive effect on delinquency. For example, a study by Reiss (1951) showed that the probability of children who have no institution and foster home experience to reoffend is 30.4 percent while those who have foster home experience reoffend at a rate of 41.02 percent, while for those who have institution experience, the percentage is 64.4 (Reiss, 1951).

Family income

There is a correlation between family income and both delinquency and substance use; furthermore, family income and family intactness is a controversial issue among researchers. While some of the researchers could not find any correlation between economic status and various types of delinquency and family status (Demuth & Brown, 2004; Hirschi, 1969), others could reach supportive results (Aytaclara et al., 2003; Buchanan, 2003; Cernkovich, 1978; MacDonald, 1999; Schafer, 1969; Tompkins, Wright, Sheard, & Allgar, 2003; Wadsworth, 2000). Those researchers who claimed that there is no correlation between the

two variables claimed that other studies were conducted under bias (Pierce, 1999; Stephens, 1991).

For example, Pierce (1999) and Stephen (1991) believe that most drug use prevalence studies are conducted among the low income communities because it is very easy to reach them and additional factors such as offering money per survey might affect the results. Additionally, information about drug addicts who live in ghettos would be more accessible from the police, court and hospital records than from those who can attend private clinics and have more opportunity to conceal their behavior. Therefore, few studies were conducted in order to expose drug addictiveness among the middle class and wealthy people (Chein, Gerard, Lee, & Rosenfeld, 1964; Currie, 1994).

Furthermore, MacDonald et al. (1999) stated that for first time drug users, income level should be dismissed in order to understand the drug use pattern. For example, lifetime drug use experience is very high among college students who continue to further their education and have regular jobs in the future. Studies done without distinction between lifetime “experiencers” and regular drug users might show that regular job workers, who eventually become people with a high income level, are more likely to be drug users (MacDonald, 1999). Support for the idea comes from Perty (2000), who proposed that the more people earn, the more they spend to buy drugs. His study showed that the decreasing income level changed the prevalent used drug type and frequency of drug use. However, this practice could not be supported for alcohol and marijuana users. Another study conducted among Turkish high school students showed that children of high income families are more likely to use ecstasy when compared to others (Corapcioglu & Ogel, 2004). Therefore, it is worth noting that there is a correlation between economic status and both delinquency and substance use, which might be also related to other factors.

In this context, interesting results came from a study conducted among high income level people, who show that they are more likely to have experience with drugs; however, when it comes to frequent use or addiction, people with a lower income level are more likely to use drugs at extreme levels. The researchers tried to explain this difference with people who

have a higher income level and tried drugs during their university years. When they looked at the high income level people, they saw that more than 50 percent of these are well educated whereas 7 percent of these people are not (MacDonald, 1999). According to Chein et al. (1964), who checked all available information from different sources in different New York boroughs, it is likely that poor people, more than others, use drugs. They also reveal that in contrast to other types of crimes such as robbery, etc., drug use is not a personal issue. It not only occurs between the addict and street seller, but also partially involves the addict's family, school and other social organizations. It seems impossible to engage in the drug habit without having the attention of these people or organizations. Therefore, they believe that although there are some insignificant changes among the boroughs, the assumption about poor people, which states that poor people are more likely to use drugs, is true (Chein et al., 1964; Currie, 1994).

On the other hand, although some researches claim that there is a correlation between family income level and delinquency among adolescents, studies conducted by Hirschi (1969) and Demuth and Brown (2004) showed that there is no correlation between family income level and delinquency among adolescents. Furthermore, according to Hirschi (1969), it only matters how much a family is tied to the conventional values in society rather than the family's economic status in the measurement of delinquency among children.

Negative correlation between family income and delinquency

However, most studies claim that there is a negative correlation between income level and drug use. For example, the British Crime Survey showed that income level and living location are associated with drug use. People who have low income and are living in the city are more likely to use drugs when compared to others (MacDonald, 1999). According to studies that were conducted among students from different economic backgrounds, 60 percent of the students are involved in the drug business for profit; seven percent of these come from middle class white families, and 87 percent of students who came from low income families are in the drug business because of economic reasons (Buchanan, 2003).

A study conducted among British homeless people shows that 64 percent of homeless people use illegal drugs, 90 percent of whom are consuming heroin (Tompkins et al., 2003). Similar results were acquired from a study conducted among Turkish male drug users, which showed that most of these drug users came from low income families and they were less likely to be successful in school (Aytaclara et al., 2003)

Another study by Wadsworth (2000), based on the National Survey of Families and Households and involving 1335 subjects, showed that fathers who have regular jobs, high education and salaries influence their children positively to pursue further education, and children from these families have more supervision, which causes a deterrence effect with respect to potential delinquency when compared to children of fathers with irregular jobs and low income. Similarly, the children of mothers who have regular income are more successful in their school. Furthermore, this study showed that the employment status of parents in intact families has a significant effect on some elements of social control theory which prevent children from becoming involved in delinquent behavior. Moreover, from the children's perspective, children from intact families whose father is working regularly believe that their families have higher supervision on them.

However, a study conducted among 412 high school students aged between 14 and 18 showed that there is an inverse but weak correlation between economic status and delinquency among adolescents (Cernkovich, 1978).

When gender and ethnicity issues considered, results showed varieties. For example, a study conducted among 585 high school students showed by comparing family income status that male students who come from Caucasian families are less likely to become involved in delinquency and more likely to be involved in sports activities than those who come from blue color families (Schafer, 1969).

On the other hand, researchers claim that there is a positive correlation between family structure and family income. For example, a study conducted among 1803 South Florida adolescents aged between 18 and 23 showed that economic power is higher in intact

families when compared to other types of families (R. Turner & Barrett, 2005). Another study based on the 1995 National Longitudinal Survey of Adolescent Health showed that intact families have the highest income level when compared to others, followed by stepmother or stepfather families, single father and single mother families (Demuth & Brown, 2004).

Positive correlation between family income and delinquency

However, other studies claim that there is a positive correlation between family income and delinquency. For example, a study conducted among Mississippi high school students to measure correlation between carrying a gun and attachment to society and social institutions, such as family and school, showed that family income has a positive and statistically significant effect on carrying a firearm in the school. Students who are from low income families are less likely to carry firearms than those from higher income families, as opposed to the social control theory assumption and prior studies (May, 1999). Moreover, according to Rosen (1985), the presence of the father in middle and low income families contributes to decreasing risk of criminal activity involvement for white boys.

Family size

Family size is also an important factor in the context of delinquency among school children. Although most scholars accept that family size has a positive effect on preventing delinquency among schoolchildren, others claim that there is a negative correlation between family size and delinquency. Therefore, it is a controversial issue whether family size offers a positive or negative contribution to the prevention of delinquency. (Jenkins, 1997).

For example, a study based on the 1995 National Longitudinal Survey of Adolescent Health showed that there is a positive correlation between family size and delinquency; however, size and presence of additional adults at home such as grandparents, etc. contribute to decreasing delinquency among adolescents (Demuth & Brown, 2004). Nonetheless, other studies claim that living with a big family is a contributing factor to decreasing delinquency among adolescents. In crowded families, apart from parents, other elders at home follow the children and restrict them from inconvenient activities. Therefore, the more members a

family has the more supervision happens in the family. Moreover, having more family members means that more income might enter the household, which enhances the wealth and economic status of the family (Jenkins, 1997).

Those who found a positive correlation between family size and delinquency claim that children cannot find enough economic and physical support from their parents in the crowded families. For example, a crowded family might decrease, rather than enhance, the economic power of the family, which might cause the incompatibility of the student with others in some group activities carried on in the school. Eventually, this situation fosters delinquency among children in the family. Furthermore, parents cannot pay enough attention to observe their children's attitude, and this lack of supervision may increase the probability of delinquent behavior (Jenkins, 1997).

Family Function

Even though some researchers stress that family structure is important in the prevention of delinquency among adolescents, other researchers claim that harmony and peace in the family is a more important factor than family structure (Biron & Le Blanc, 1977; Jenkins, 1997). According to those who claim that family function has a greater effect on delinquency, the conclusion is that having a broken family does not necessarily imply that one comes from a bad home (Voorhis et al., 1988).

In their study, Cernkovich and Giordano (1987) claim that the importance of the structure of the family is exaggerated. According to researchers, coming from intact, separated or stepfather/mother families has little or no effect on adolescents' attachment to parents, and eventually, to delinquency (Cernkovich & Giordano, 1987). However, the quality of communication, low level of trust, control, support and supervision between adolescents and parents are significant predictors of delinquency (Cernkovich & Giordano, 1987). Furthermore, conflict in the family constitutes an increased risk for delinquency among adolescents (Cernkovich & Giordano, 1987).

Quality of relations between family members (communication)

Although various factors affect family attachment, the quality of relations between parents and children is one of the most important factors in the prevention of delinquency among children (Rosen, 1985; Stattin & Kerr, 2000); in fact, there is a negative correlation between psychological harmony in the family and delinquency (Reiss, 1951). Researchers claim that children who live in a dysfunctional family, whether such family is intact or broken, are under the same amount of risk in terms of becoming involved in delinquent behavior (Juby & Farrington, 2001). Moreover, the lack of communication between children and either stepmother or stepfather might decrease the respect of children toward their parents, which causes them not to care whether they cause embarrassment or not with their delinquent behavior; furthermore, this situation reduces the respect of children against institutional authority, as well (Jenkins, 1997).

According to researchers, communication is bidirectional and problems might occur from either/both mother or/and children. For example, while selfishness, disregard or refutation cause lack of communication from the mother's perspective toward children, not reflecting true feelings, such as anger or uncertainty causes lack of communication toward the mother from the children's perspective (Hartos & Power, 2000). For example, studies conducted among drug users show that drug users find support to curb their drug problem from their families. In one case, one of the methamphetamine users who tried to quit from the drug claimed that he was receiving support from his mother, even though his mother had a negative perception of drug use (Boeri, Sterk, & Elifson, 2006). However, some users hide the fact that they are drug users from both their families and friends (Boeri et al., 2006). Therefore, researchers measured quality of communication with how much children share information about their friends with the parents or time spent with their parents (Hirschi, 1969).

On the other hand, from the parental perspective, some users claim that they do not want to lose their role in the family because of their drug problem. For example, one of the heroin addicts asserted that her family role is more important than her drug addiction. However,

the fact is that it is very difficult to maintain both social roles and drug addiction. Therefore, most drug users lose their roles in the family and conventional society. Eventually, they are more likely to become a corrupt part of society, such as a drug seller, sex worker, etc. (Boeri et al., 2006).

According to researchers, there are various explanations why disruption of family affects children negatively and diverts them to delinquency. First, the separation of the family affects the quality of communication between parents and children. Second, children from disrupted families lose the feeling of warmth toward their parents and turn against them because of the separation. Third, children from these families lose their concentration in school and their school performance decreases. Fourth, in case of separation, children receive support and assistance from only one of the parents instead of both parents in both their personal life and school (R. Johnson, 1986). Eventually, their vulnerability will increase and they become more open to external factors, such as a propensity to delinquency (R. Johnson, 1986).

Studies that reveal the correlation between the quality of communication in the family and delinquency found supportive results. For example, a study among 228 sixth grade students in New York showed that the quality of communication between parents and children helps children to embrace conventional values of families, which is an important preventive factor in the case of delinquency (Griffin et al., 2000). Moreover, lack of harmony in the family increases the possibility of involvement of adolescents in delinquent behavior (Juby & Farrington, 2001). Furthermore, children who live in families that are separated because of this lack of harmony are more likely to become involved in delinquency than children from those families where one member been lost due to death (Juby & Farrington, 2001).

Negative correlation

So far, research has unveiled a huge amount of support for the negative correlation between lack of efficient or quality communication and both substance use and delinquency among children. For example, a study that measured social control elements with data that Hirschi

used in his original research showed that a stronger relationship between father and adolescent is consistently tied with a decrease in the number of delinquent cases. For example, in this study, 43 percent of children who have little or no communication with their father became involved in two or more delinquent acts while only 5 percent of the children who had good communication with their fathers were involved in two or more delinquent acts. In other words, while 73 percent of children who had good communication with their parents did not commit any type of delinquent act, only 39 percent of the children who had little or no communication with their fathers did not commit any type of delinquent act, which is almost two times less (Greenberg, 1999).

Hartos and Power (2000) studied the effect of communication between mother and adolescent by using 161 students as subjects. In their study they found that there are no gender differences between male and female students in terms of communication with their mother. Moreover, inadequate communication between mother and children causes stress and aggressive behavior among adolescents. Furthermore, researchers found that both mother and children might perceive the quality of communication differently. For example, while the mother is thinking that there is good communication, children might think the opposite (Hartos & Power, 2000).

Furthermore, studies that seek to measure the dynamics between structure and function show that for African American boys, spending time and talking with their father acts as a dampener to the risk of delinquency and has a greater impact than family structure. However, when researchers put family size into the equation, results show that in crowded families, children who are in contact with their fathers are two times more likely to become involved in delinquent behavior than those who have less brothers and sisters in the family (Rosen, 1985)—as this might be the cause of decreased communication between parents and children.

In his study, Conger (1976) measured how communication impacts the rate of delinquency among adolescents by using data acquired by the Seattle Atlantic Street and Richmond Youth Survey. This researcher found that there is a negative correlation between

communication and delinquency. In another words, the adolescents, who can get a positive response from their parents during communication are less likely involve in delinquency (Conger, 1976).

Different studies enlightened importance of communication in the family from different perspectives. For example, While a study conducted among 734 high school students showed that quality of communication in the family is a strong predictor for delinquency among adolescents (R. Johnson, 1986), a study conducted among 326 sample in the French section of the Catholic School Board of Montreal, Canada to measure the link between home based delinquency and communication, supervision and family structure showed that quality of communication and supervision have a greater effect on delinquency when compared to family structure (Biron & Le Blanc, 1977).

According to a study conducted among 266 university students, families have an important role in terms of preventing their children from indulging in a drinking habit by communicating with them (Turrisi, Wiersma, & Hughes, 2000).

A study conducted among drug users showed that there is a negative correlation between harmony in the family and substance use. In other words, family support decreases the incidence and frequency of drug use, while disagreement and conflict in the family raise the drug use rate (J. S. Lopez et al., 2001).

Another study conducted among 1725 adolescents aged between 11 and 17, the New York Youth Survey, showed that there is a negative correlation between child abuse and quality of communication in the family. Abused children are less likely to spend time with their parents, or doing their homework, have lower degree of future expectations and are more likely to spend time with their friends and become involved in delinquency and violent behaviors (Rebellon & Van Gundy, 2005).

Positive correlation

However, other studies found either a non-supportive or positive correlation between quality of communication in the family and delinquency. For example, a study conducted among 527 adolescents aged between 12 and 19 showed that there is no correlation between self-expression, such as expression of one's feelings with others, and substance use (Razzino et al., 2004).

Another study conducted among Hungarian drug users showed that there is no statistical significance between quality of communication in the family and substance use (Veress et al., 2004).

However, using 10 variables in their study to measure social control theory, Rebellon and Van Gundy (2005), could not find enough support in terms of explaining delinquency. In fact, even though five of the social control elements could give support for the explanatory power of social control elements in explaining the relation between parental abuse and delinquency among adolescents—when the effects of 10 of the variables related to social control elements are investigated, results showed that social control theory does not have explanatory power in regard to the link between parental abuse and delinquency among adolescents (Rebellon & Van Gundy, 2005).

Supervision

The major concept that comes into play in the prevention from delinquency in the context of family attachment is supervision of the family (Kierkus & Baer, 2002). There are various ways to provide parental control over the children, including setting rules about coming in and going out of the house, knowing with whom and where they are, understanding the quality of communication between parents and children, and the closeness of the children and parents (Stattin & Kerr, 2000).

According to Hirschi, even though family supervision has an indirect effect when it comes to preventing delinquency, the foundation of supervision is related to the correlation between delinquency and quality of interaction between children and family (Hirschi, 1969). Children

who think that their parents have no idea with whom they are and where they are, are more likely to commit a crime because the children believe that they are free from supervision or presence of their parents (Hirschi, 1969). Therefore, researchers claim that supervision is negatively correlated with delinquency (Conger, 1976). For example, a study conducted among 228 sixth grade students in New York showed that parental supervision has a greater effect than other parental functions in the family when it comes to preventing delinquency, alcohol and cigarette smoking among adolescents (Griffin et al., 2000).

Family structure has an effect on having delinquent peers because of supervision decrease in non-intact families (Matsueda, 1982). According to researchers, intact families have greater preventive power than non intact families because there are two parents at home instead of one (Griffin et al., 2000). Reis (1951) claims that even though personal control or ego development of the individual is not enough strong to prevent said individual from delinquency, effective supervision which is provided either by family or the environment decreases the possibility of involvement in delinquency. For example, a study based on the 1995 National Longitudinal Survey of Adolescent Health showed that spending time together with family (involvement) and supervision is more stressed in intact families than in separated families—this acts as a preventor of delinquency among adolescents (Demuth & Brown, 2004).

On the other hand, the gender of parents calls for different roles in terms of providing supervision in the family. For example, according to Hirschi (1969), mothers are expected to provide supervision over children because they spend more time with their children than the fathers; while fathers are expected to provide intimate communication with their children. For example, a study conducted among Hungarian drug users showed that children of mothers who do not work are less likely to use drugs. According to researchers, non working mothers have more supervision on their children when compared to working mothers. Therefore, mothers who stay at home are more protective than working mothers, in terms of controlling drug use (Veress et al., 2004).

Furthermore, according to researchers, there is a correlation between economic status and supervision. Families who have a low economic status exercise lower supervision on their children (Reiss, 1951). Another researcher also claimed that children who are from non-intact and low income families are less supervised vis-à-vis their peer networks; in fact, unsupervised children are more likely to become involved in delinquent behavior than supervised children. For example, a study based on the British Crime Survey among 10905 samples who are over 16 years old showed that 35 percent of robberies, 19 percent of stranger violence and 80 percent of street robberies and mugging occurred in unsupervised children networks (Sampson & Groves, 1989).

However, according to Hirschi (1969) and others, family supervision cannot prevent delinquency in some cases because crimes in which children are involved are committed in a very short window of time and supervision may not be sufficient to curb these acts. Therefore, instead of direct supervision, researchers claim that indirect supervision, such as family attachment, will be more efficient. Furthermore, communication between parents and children or among parents affects bonds with family and children in a good or bad manner. Based on how good the communication in the family is, this is essential in developing children's psychology (intimacy of communication) (Kierkus & Baer, 2002). In some cases, even intimacy of communication may not be enough because children and parents might share different ideas and that factor might cause delinquency, which is called "affectional identification". Therefore, it can be said that family attachment consists of direct, indirect supervision, intimacy of communication and affectional identification (Kierkus & Baer, 2002).

Negative correlation

According to researchers, the measurement of supervision increases the explanatory power of delinquency and having delinquent peers. For example, in his study, Matsueda (1982) measured the effect of delinquent peers on delinquency among adolescents. He found that socioeconomic variables and social control elements can explain 19 percent of cases where individuals have delinquent friends; however, when adding supervision to the equation, the

explanatory power of having delinquent friends almost doubled (39 percent). This researcher claimed that supervision has a direct and significant effect on having delinquent peers (Matsueda, 1982).

A study conducted among Ankara High school students also showed that family supervision is statistically significant and there is a negative correlation between family supervision and assault, school delinquency and public disturbance, as social control theory predicts (Ozbay & Ozcan, 2006; Özbay, 2008).

A study based on the National Youth Survey showed that there is a direct relation between parental supervision and delinquency (Matsueda & Heimer, 1987).

Another study conducted among 1110 probationers aged between 11 and 17 showed that slightly more than 90 (92) percent of probationers did not commit a crime while they were under the supervision of officers (Reiss, 1951).

Size of family-birth order

Another study conducted among 1803 South Florida adolescents aged between 18 and 23 showed that an increase of adult members in the family decreasing substance abuse risk among adolescents; however, step-parents do not have the same positive effect as blood relations (R. Turner & Barrett, 2005). According to researchers, the link between a key adult member in the family and low substance use is related more to control and supervision over children (R. Turner & Barrett, 2005). Moreover, birth order in the family might have an effect on control over the children. A study conducted among adolescents who live in Berlin and Toronto showed that families apply greater control over their first born children when compared to others (Hadjar, Baier, Boehnke, & Hagan, 2007). Furthermore, control over children affects adolescents' risk taking behavior. In other words, the more children are taken under a guardian's control the less likely they carry out risky behavior (Hadjar et al., 2007).

Attachment to peers

Attachment to peers is also an important factor as much as attachment to family and school in explaining delinquency and drug use (Liska & Reed, 1985) (diger referanlari koy). Both social control theory and differential association theory emphasize the importance of attachment to peers (Hindelang, 1973) with some differences. While differential association theory claims people learn delinquent behavior from their delinquent peers, social control theory claims that people who have low attachment to conventional values remain under the influence of delinquent peers while adolescents who have high attachment to conventional values are attached to conventional peers. Therefore, even though both theories claim the importance of attachment to peers, in fact, there is a difference between the two theories in terms of explaining attachment to peers.

In his original study, Hirschi did not use delinquent peers as an element of social control theory and he admitted that he did not give enough credit or maybe even disregarded the importance of association with delinquent peers. Therefore, further studies borrowed the delinquent peer element from differential association theory and proposed that association with delinquent peers should be one of the elements of social control theory which effect delinquency directly and independently (Marcos et al., 1986).

While attachment to conventional peers reduces the risk of adolescent involvement in delinquent behavior, which Hirschi already found support for in his original study, attachment to delinquent peers increases the risk of involvement in delinquency. In other words, as opposed to attachment to conventional peers, attachment to delinquent peers does not restrain an individual from delinquency (Cernkovich & Giordano, 1987; Krohn & Massey, 1980b). This statement was adjusted in subsequent social control studies that discuss similarities with differential association theory (Krohn & Massey, 1980b).

Study results have shown that adolescents who are more attached to non delinquent peers are less likely to become involved in delinquent behavior. Attachment to peers is important in case of what type of friend one is attached to. If an adolescent has delinquent peers, they are more likely to learn delinquent behavior from such peers; however, if an adolescent has

an attachment to conventional peers, it is more likely that they learn from peers how to deal with conventional values (Matsueda, 1982).

Delinquent acts are more likely committed with friends and the more delinquent friends the adolescent has, the more likely it is that he/she will become involved in delinquency. Therefore, it can be said that having delinquent friends increases the risk for delinquency. On the other hand, students who have friends approved by their teachers are less likely to engage in delinquent behavior than those who have friends unapproved by their teachers (Hirschi, 1969).

On the other hand, some researchers found a direct relation between attachment to peers and delinquency (Hindelang, 1971), while others found an indirect correlation (Mason & Windle, 2002).

Conventional peers

According to social control theory, there is a positive correlation between attachment to peers and attachment to conventional values. Adolescents who are strongly attached to conventional values pick their friends from conventional peers. In this context, social control theory emphasizes the importance of attachment to friends rather than attachment to delinquent peers in the measurement of delinquency because social control theory proposes that the level of students' attachment to conventional values is set whether they will gain delinquent or non-delinquent friends (Aliverdinia & Pridemore, 2007; Hirschi, 1969). Therefore, social control theory measures attachment to the peers in general rather than specifically delinquent peers. If attachment to conventional values is weak, students will not give enough attention to their delinquent peers, which increases the risk of involvement in delinquent behavior and this is the key point that differentiates social control theory from differential association theory (Hirschi, 1969).

Social control theory, also, proposes that there is a negative correlation between attachment to conventional peers and being friends with delinquent peers. In other words, adolescents who are attached to conventional peers have less delinquent peers, which, as a result,

decreases involvement in delinquent behavior (Erickson et al., 2000; Matsueda, 1982; Ozbay & Ozcan, 2006).

Hirschi (1969) stated that there is a negative correlation between attachment to peers and delinquency. According to his study (1969), 64 percent of students who have a strong attachment to their friends are involve in low-level delinquency, compared to 47 percent of students have who have a lower degree of attachment to friends.

In his study Ozbay (2008) found that attachment to conventional peers is statistically significant and there is a negative correlation between attachment to conventional peers and assault, school delinquency and public disturbance as social control theory predicted (Özbay, 2008).

A study conducted among 300 university students showed that there is a negative and statistically significant correlation between attachment to peers and delinquency (Paternoster et al., 1982)

A study conducted among substance users aged between 13 and 17 showed that there is a negative correlation between association with conventional groups and substance use. In fact, the more people associate with conventional social groups, the less likely they engage in substance use (Downs et al., 1997).

Another study conducted among 1803 South Florida adolescents aged between 18 and 23 showed that the relation with conventional peers decreases the probability of substance use among adolescents (R. Turner & Barrett, 2005).

According to researchers, there might be several reasons that might explain the negative correlation between attachment to peers and both substance use and delinquency. First, conventional groups are the less likely to be involved groups with respect to substance use and those groups might influence individuals toward a positive mindset and thus prevent them from engaging in substance use. Second, spending time with conventional groups reduces the risk of spending time with unconventional activities and diminishes the risk of

being under influence of unconventional groups. Finally, individuals who are in association with conventional groups are unofficially educated by members of these groups and when they stand against the norms of such conventional groups they are informally punished (Downs et al., 1997).

According to Hirschi (1969), adolescents who are disrespectful toward their friends' opinion see themselves as delinquent. Moreover, adolescents are more likely to be worried concerning their friends' reactions than their parents' reactions in case of they are caught engaging in delinquent behavior. Therefore, it can be assumed that friends' reactions are more preventive than parents' reactions (Hirschi, 1969).

Moreover, student who engage in delinquent behavior are more likely to have delinquent friends. The difference between social control theory and differential theory is about the causal relation between adolescents and delinquency. While social control theorists believe that adolescents either commit delinquent acts before/after joining a delinquent group or their ties with society's conventional norms weaken (thus, consequently, they become friends with delinquents, which results in delinquency – i.e., the causal relation); differential theory assumes that adolescents meet with delinquents and learn how to commit a crime from them (Hirschi, 1969).

Delinquent peers

Peer association is one of the most important factors effecting substance use among adolescents (Veress et al., 2004). According to researchers, individuals begin to use drugs during socialization, especially, association with friends (Ng, 2002). According to the KOM (2009) report, 22 percent of Turkish drug users begin to use drugs because of peer influence while 27 percent do so out of curiosity, 15 percent because of family problems, 15 percent because of personal problems and the rest for various reasons (KOM, 2009). Another study, conducted among drug users, showed that peer pressure is the most significant factor in starting drug use (Muncer, Epro, Sidorowicz, & Campbell, 1992).

Although Hirschi stated that there is a negative correlation between peer attachment and delinquency, Hindelang's (1973) findings did not support Hirschi's (1969). On the contrary, Hindelang found that 49 percent of students who have a strong attachment to peers and 67 percent of students who have a weak attachment to peers engaged in low level of delinquency (Hindelang, 1973). In fact, in his study Hinderlang (1971) found that the more strongly attached students were to their friends the more likely they were to become involved in delinquency (Hindelang, 1973).

There is a positive correlation between attachment to delinquent peers and delinquency. Studies conducted to understand whether peer or other elements such as the parents, law, or police who are dominant in the relationship showed that delinquent adolescents are more peer oriented than non delinquent adolescents (Polk, Frease, & Richmond, 1974). Hirschi (1969) found in his study that having three or four delinquent friends increases the likelihood of delinquency by almost 50 percent among adolescents (Hirschi, 1969). Nevertheless, an increase of attachment to parents decreases the likelihood of delinquency even though children have delinquent peers. Besides, attachment to parents decreases the probability of having delinquent peers (Hirschi, 1969).

For example, a study conducted among 2626 adolescent showed that social control variables including parental attachment, educational attachment, conventional values and drug user peers can explain 34 percent of alcohol use, but in case of a drug user peer expelled from the equation it remains 16 percent; for cigarettes, 27 percent versus 13 percent; for marijuana, 42 percent versus 21 percent; and for amphetamine users, 26 percent versus 13 percent. Furthermore, researchers found that there is a statistically significant and direct correlation between being associated with drug using friends and substance use. These results showed that measurement of drug user peers enhances the explanatory power of the social control theory (Marcos et al., 1986).

Another study, based on two different data collected in Seattle and Western Contra Costa County, showed that association with peers increases the likelihood of delinquent involvement. Therefore, it can be said that there is a positive correlation between

associating with peers and delinquency regardless of whether it is conventional peers or delinquent peers (Conger, 1976)

In their study Matsueda & Heimer (1987), Kaplan et al. (1984), Alarid, Burton, & Cullen (2000), Mason & Windle (2002), Razzino et al. (2004), McNulty & Bellair (2003), Aliverdinia & Pridemore (2007) and Zhang & Messner (1996), also, found similar results.

According to those studies, there is direct and positive correlation between having friends picked up by police or delinquent friends and delinquency (Matsueda & Heimer, 1987; Zhang & Messner, 1996; Razzino et al., 2004; Alarid, Burton, & Cullen, 2000); being in association with drug user friends has a direct effect on marijuana use (Kaplan, Martin, & Robbins, 1984; Alarid, Burton, & Cullen, 2000); having association with substance user peers increase risk of involving in serious violence (McNulty & Bellair, 2003). Furthermore, early onset marijuana use also implies increasing association with drug user friends (Kaplan, Martin, & Robbins, 1984).

Nevertheless, researchers claim that measuring only conventional peers or delinquent peers is not adequate in understanding and predicting delinquency among youths; both variables should be measured and compared for better prediction to understand the difference between attachment to conventional and delinquent peers. According to a study conducted among 200 youths aged between 13 and 15, there are no significant differences between those who have no attachment or a weak attachment to delinquent peers and those who have a moderate or strong attachment to delinquent peers in terms of measuring delinquency. For example, 24 percent of those with weak attachment to peers are involved in delinquent behavior and 26.6 percent of those with at least moderate attachment are also involved in delinquent behavior. However, when attachment to conventional peers is examined, almost 50 percent (48.5) of youths who have weak or no attachment to conventional peers are involved in delinquent behavior, while only 16.8 percent of youths who have at least a moderate level attachment to conventional peers are involved in delinquent behavior. Furthermore, 58.3 percent of youths who have a bond with delinquent peers but not with conventional peers are involved in delinquent behavior while only 15.2

percent of youths who have a bond with conventional peers but not with delinquent peers are involved in delinquency (Linden & Hackler, 1973).

Attachment to school

School is one of the first steps of socialization for children and youths in the contemporary world. Therefore, it has an essential role in developing the social norms and bonds of children toward society. Because of its critique place, school factors have been the subject of criminological studies (Zhang & Messner, 1996). So far there are a great number of studies conducted to reveal the effect of school on delinquency in the United States and other western countries (Zhang & Messner, 1996). However, there are limited studies conducted in Turkey. Most of the current Turkish studies focus on profiling and characterizing both delinquents and drug users, rather than investigating causes of delinquency from a criminological theory perspective.

Attachment to school is one of the most important factors in explaining delinquency and drug use; besides, school commitment is one of the most used element in prevention programs (Liska & Reed, 1985). According to social control theory, there is a negative correlation between attachment to school and both delinquency and drug use among adolescents. The more students are attached to school, the less likely they are involved in delinquent behavior and substance use. In other words, the less they are attached to school, the more likely they are to become involved in delinquent behavior and use drugs; (Erickson et al., 2000; Ozbay & Ozcan, 2006; T. Thornberry et al., 1991; Zhang & Messner, 1996).

School fulfills additional roles beside education, such as increasing commitment to authority. School prepares students for future adult roles and helps to develop mature individuals (Reiss, 1951). Therefore, the researcher accepted missing classes and school as a sign of involvement in delinquency. Similar to truancy, disobeying school and class orders have been seen as an indicator of delinquency (Reiss, 1951). For example, a study about drug users also showed that drug users are less likely to incorporate themselves with the school environment (J. S. Lopez et al., 2001).

So far, most studies found negative correlation between attachment to school and delinquency. For example, a study based on the National Youth Survey showed that there is a negative, but not a significant indirect correlation between attachment to school and both delinquency and marijuana use. From the reverse perspective, previous delinquent involvement and substance use decrease school attachment but increase future delinquency (Ford, 2005)

A study which was conducted in New England among 1366 Patriot High School students showed that even though there is a negative correlation between school problems and both serious delinquency and risky behavior, the correlation is not significant (Booth et al., 2008).

The national longitudinal study of adolescent health showed that there is a negative correlation between school factors and substance use. School factors, such as GPA and attachment to school are significant in predicting substance use among adolescents (Bree & Pickworth, 2005). According to researchers, school has various roles in shaping adolescents' behavior. First, adolescents spend a huge amount of time in the school; therefore, it is very important to make them spend their time in conventional activities in the school, so they can stay away from delinquency. Second, school helps in the sociological development of students. Third, an increase in academic competence in the school eventually gives them opportunities for their future (Bree & Pickworth, 2005).

A study conducted among 2534 adolescents who live in South Florida showed that there is a negative correlation between school attachment and substance use (Galaif et al., 2007).

A study conducted among 2626 adolescents showed that there is a negative and direct correlation between educational attachment and cigarette use (Marcos et al., 1986).

A study conducted among 309 high school students showed that there is a negative correlation between school commitment and involvement in rebellious and delinquent behavior. In other words, students who have low school commitment are more likely to be involved in delinquent behavior. Researchers also found that school commitment is also negatively correlated with delinquent peers (Kelly & Pink, 1973). Furthermore, researchers

observed that students who are less successful at school are choosing to be in association with delinquent peers instead of becoming involved in school activities, as opposed to their successful counterparts. This observation, for those who have low school commitment, results in failure to become successful in their future education life and careers (Kelly & Pink, 1973).

Another study based on data collected by Nankai University and the Tianjin Communist Youth League showed that school has a significant direct effect on adolescent delinquency (Zhang & Messner, 1996).

There is also a negative correlation between attitude toward school and delinquency among students. In other words, students who dislike school are more likely to be involved in delinquent behavior than those who like school. However, dislike of school is not the cause of delinquency but might be an incentive for delinquency. Hirschi (1969) stated that there might be several reasons for disliking school such as lack of academic achievement, commitment and involvement in the school. Students who are not interested in school divert their interests from the academic environment to delinquency (Hindelang, 1973; Hirschi, 1969). According to Hirschi (1969), adolescents who dislike school do not approve the rules and regulations of these institutions. This conflict causes them to question the fairness of these institutions and makes students more vulnerable to the effect of internal and external factors, which might divert them to become involved in delinquency. In the meantime, such an attitude negatively affects the relationship between students and teachers who represent institutional authority. On the other hand, acceptance of institutions and their authority increases positive attitude toward teachers. Students value teachers' opinions about them, which eventually reduces delinquency among students (Hirschi, 1969).

Rejection at school also has an effect on drug use among adolescents. According to researchers, adolescents who are rejected by both school and family look for support from other sources who are not representing conventional values such as peers that live in a delinquent environment (Kaplan et al., 1984).

There is also a negative correlation between school status and early drug use. According to researchers, youths who do not continue school are more likely to begin drug use in the early ages when compared to their student counterparts (Gordon, Kinlock, & Battjes, 2004).

According to Jenkins (1997), the main reason why students have weak ties to the school environment is related to weak communication and interaction with others in the schools. However, there might be other reasons such as lack of educational goals, finding compatibility with friends, taking a role in school activities and believing or understanding the necessity of rules in the administration of schools (Jenkins, 1997). Furthermore, delinquency in the school might be caused because of rebellious behavior or frustration of adolescents with respect to school.

On the other hand, statistics may not always reflect the actual situation. For example, well known people are less frequently accused and convicted by both police and judicial systems. Delinquent behaviors in which famous athletes are involved might be concealed before the consequences of such delinquent behavior are carried to the judicial system (Schafer, 1969).

Researchers measured the attachment to school with various variables. For example, some researchers used attitudes toward the school while others used their academic grades, and yet others used the question of whether students like school and their teachers (Greenberg, 1999; Jenkins, 1997; Krohn & Massey, 1980b; Liska & Reed, 1985).

Attachment to teachers

On the contrary to general acceptance, Hirschi's school attachment is represented with individual levels. He measured school attachment with closeness of adolescents with their teachers, rather than their grades and school environment. This ambiguous situation reveals some difficulties in the measurement of school attachment (Krohn & Massey, 1980a). Nevertheless, most studies found a negative and statistically significant correlation between attachment to teachers and delinquency (Erickson et al., 2000; R. Felson & Staff, 2006; Greenberg, 1999; Hirschi, 1969; Ozbay & Ozcan, 2006; Özbay, 2008).

For example, a study conducted among 1710 Ankara High School students showed that there is an indirect, negative and statistically significant correlation between attachment to teachers and assault, school delinquency and public disturbance as social control theory predicted (Ozbay & Ozcan, 2006; Özbay, 2008).

Another study conducted based on Richmond Youth Survey showed that the more children care about their teachers' opinion about them the less they become involved in delinquent acts (Greenberg, 1999).

According to Hirschi (1969), adolescents who do not care what their teachers think of them and have weak ties to school are more likely to engage in delinquent behavior, when compared to others.

However, in their study, Ngai and Cheung (2003) could not find a significant correlation between attachment to teachers and both delinquency and crime even though belief and attachment to work are negatively correlated with delinquency (Ngai & Cheung, 2003)

Sports activities

School has a significant role in terms of the socialization of children besides that of their families (A. Rhodes & Reiss, 1969). High school students spend approximately eight hours in school for class studies, which leaves students a huge amount of time for after school activities (Huebner & Betts, 2002). In fact, in terms of socialization, schools offer multidimensional opportunities for children. For example, children are in a one-dimensional relationship with their parents in the family while school offers them social, sports, academic, etc. activities (A. Rhodes & Reiss, 1969). Furthermore, according to Schafer (1969), adolescents who engage in sports activities are more open to socialization than their non-sports-inclined counterparts; and sports activities increase external social control for adolescents. In this context, involvement in sports activities decreases the likelihood of delinquency and those who engage in sports activities are often able to divert rebellious behavior from them (Schafer, 1969).

Schafer (1969) claimed that one of the causes of low level delinquency among sportive adolescents is that students who are involved in sports activities are under the control of their coach because it is their job to follow students so they can perform at the maximum level not only on the field but also in their school life. Coaches follow students in accordance to the rules which they already set in and out of school (Schafer, 1969).

Sport activities provide different opportunities in various countries. For example, while American adolescents acquire the opportunity to apply for a four year college degree through sports scholarships, such as basketball or track and field scholarships, in Turkey students are not offered similar opportunities. Nevertheless, it is common belief that involvement in sports activities increases future expectancies among adolescents, which eventually decreases involvement in delinquency (Segrave & Hastad, 1984). For example, a study conducted among 1693 high school students showed that adolescents who engage in sports activities are less likely (45.5 percent) to be involved in delinquency than their non-sportive (52.3 percent) counterparts (Segrave & Hastad, 1984). Furthermore, sports oriented adolescents have greater attachment to school than their non-athletically-inclined counterparts; delinquent behaviors are more common among adolescents who do not engage in sports activities; finally, non-sports-oriented adolescents are more likely to be open to the effect of delinquent peers (Segrave & Hastad, 1984)

However, other studies claimed that the correlation between involvement in sports activities and delinquency is not always as predictable. For example, some gang groups select their members from sports groups (Segrave & Hastad, 1984; Thrasher, 2000).

Commitment

As one of the elements of social control theory, commitment refers to commodities and assets of an individual. Those commodities might be a job, marriage, a high salary, high social status etc. So far, most studies showed that there is a negative correlation between commitment and delinquency (Akers, 2000; Erickson et al., 2000; Hirschi, 1969; M. Junger & Marshall, 1997; Krohn & Massey, 1980b; Matsueda, 1982; Paternoster et al., 1982; T. Thornberry et al., 1991; Wiatrowski et al., 1981; F. P. Williams & McShane, 1994).

Individual career plans are shaped based on the following three elements, in the measurement of commitment, which are educational, occupational and better life conditions. Although these three elements are correlated, there might be differences in time sequences, causations and results (Hirschi, 1969). However, Hirschi measured commitment among adolescents in various ways, such as, school success (Hirschi, 1969; Krohn & Massey, 1980b), educational aspiration (Hirschi, 1969; Krohn & Massey, 1980b), grades at school (Krohn & Massey, 1980b), attitudes toward the school (Ozbay & Ozcan, 2006), and dating (Hirschi, 1969).

Even though most studies found a negative correlation between commitment and both substance use and delinquency, some studies could not find any correlation. For example, a study based on The National Education Longitudinal Study showed that attachment to parents and teachers has an explanatory power for delinquency while commitment does not (R. Felson & Staff, 2006).

In this study, commitment is measured with grade point average (GPA), as well as both aspiration and future expectancies.

Academic performance-GPA

Negative correlation between academic performance and delinquency has been accepted by most researchers. Students who have lower grade scores are more likely to be involved in delinquent behavior (Andrews et al., 1991; R. Felson & Staff, 2006; Hirschi, 1969; Maguin & Loeber, 1996; A. Rhodes & Reiss, 1969). According to researchers, having good academic achievement is one of the risk reducing behaviors for both male and female adolescents (Razzino et al., 2004). Furthermore, Hirschi stated that there is not a direct but an indirect correlation between academic performance and delinquency (R. Felson & Staff, 2006; Hirschi, 1969). However, the relation between academic achievement and delinquency is more complex than expected because there are various factors such as the relationship between students and teachers, attitudes toward school properties, failing to attend the courses, etc. (A. Rhodes & Reiss, 1969).

According to Hirschi (1969), there is no direct relation between academic performance and delinquency; however, academic performance is related to attachment to school, commitment and involvement. The more students become successful at school and the more they like school and are rewarded by teachers, as a result, the more they have attachment to conventional values and the less they are involved in delinquent behaviors (Hirschi, 1969; Maguin & Loeber, 1996).

Most studies measured school success with grade point average (GPA) and claimed that GPA is the strongest element in the measurement of commitment. For example, a study conducted among 3065 students showed that GPA is the stronger predictor of delinquency when compared to other commitment elements such as educational and career aspirations (Krohn & Massey, 1980b) .

There is a negative correlation between academic achievement and delinquency. Students who think that academic achievement (grade) is important for them are less likely to be involved in delinquency. For example, Hirschi found in his study that 64 percent of students who think that academic achievement is important for them and 21 percent of students who do not care about their grades are involved in a low level of delinquency. Furthermore, in his study, Hindelang found that 66 percent of males and 65 percent of female students who care about their grades are involved in a low level of delinquency while 41 percent of males and 39 percent of females who do not care about their grades are involved in a low level of delinquency (Hindelang, 1973). Therefore, researchers claimed that competence in academic achievement is a factor that contributes to a decrease in delinquency (Hindelang, 1973).

In his study, Ozbay (2008) measured correlation between GPA and delinquency. Study results showed that getting a good grade is statistically significant with respect to delinquency and there is a negative correlation between attachment to school and assault, school delinquency and public disturbance, as social control theory predicted. Moreover, among other variables including attachment to conventional peers, belief and supervision, GPA was the strongest predictor for delinquency among high school students. (Özbay, 2008).

A study conducted among 1459 university students to reveal the effect of social control elements among drunk drivers showed that there is a negative correlation between GPA and drunk driving. Students whose GPA is higher than two are less likely to drive a car while they are drunk. For example, 35.7 percent of students whose GPA is two or less are drunk drivers, while 29.2 percent of those who have a GPA between two and three, followed by 20 percent of students' GPAs that are at least three, are drunk drivers (Durkin et al., 2007).

Another study conducted to reveal the characteristics of drug users showed that there is a negative correlation between academic achievement and drug consumption. The less students are happy with their academic achievement the more likely they are to use drugs (J. S. Lopez et al., 2001).

Some prior studies also included the economic status of children in the chain of explanation relating to measurement of the relationship between academic achievement and delinquency. According to these studies, low income status effects students' achievement at school, and this triggers delinquency (A. Rhodes & Reiss, 1969). For example, a longitudinal study which was conducted among 1227 high school students showed that there is a negative correlation between school success and delinquency. According to researchers, students who are having failure at school are more likely to be involved in delinquency than others. For example, 46 percent of non successful students who came from a white collar family and 38 percent of non successful students who came from a blue collar family are involved in delinquency, while only seven percent of white collar and 14 percent of blue collar families' children who are successful in school are involved in delinquency. Even though there is variance between white collar and blue collar families' children in terms of involvement in delinquency, in both equations children who are successful at school are less likely to be involved in delinquency (Polk et al., 1974).

However, the causal relation between delinquency and academic performance is a controversial issue (Andrews et al., 1991). Some researchers claim that low academic performance causes delinquency, some others claim that delinquency causes low academic performance, and yet other researchers say there is no correlation between academic

achievement (R. Felson & Staff, 2006; A. Rhodes & Reiss, 1969) and delinquency, while others claim that both effect each other (Andrews et al., 1991; Maguin & Loeber, 1996).

For example, a study conducted to understand the causal relation between academic performance and delinquency among 10th and 12th grade students based on the National Education Longitudinal Study showed that there is not a causal correlation between GPA and delinquency. However, statistical significance and a negative correlation between school grades and delinquency is observed. For example, students whose grades are low in the 10th grade are more likely to become involved in delinquency in the 12th grade or vice versa, if the student has high grades (R. Felson & Staff, 2006). Furthermore, when all social control elements are put into the equation, even though the effect of GPA has declined about one fourth, it still maintains its significance (R. Felson & Staff, 2006).

Rhodes and Reiss (1969) compared English course grades and juvenile court records. In their study, they saw that there is a negative correlation between English course grades and delinquency. For example, 149 of the total number of students could not pass the class while 70 students had a D, 54 students had a C, 23 students had a B and only 6 of the students had an A from their English course. These numbers are taken from a pool of 1000 students who were remanded to juvenile court. However, researchers could neither find a causal relation between grades and delinquency nor the bidirectional effect between GPA and delinquency. In other words, it was ambiguous whether delinquency causes low grades or low grades cause delinquency (A. Rhodes & Reiss, 1969).

However, Hirschi used the intellectual level in the measurement of delinquency because he and his followers believe that there is a causal relation between a low intellectual level and academic performance and problem solving, which eventually causes an increase of delinquency (Hirschi, 1969; Maguin & Loeber, 1996). Maguin and Loeber (1996) found that there is a negative correlation between intellectual level and both academic performance and delinquency.

Andrews, et al. (1991) found similar results as Hirschi. The researchers' study showed that there is a negative correlation between achievement expectation and beginning marijuana use; and cigarette use and academic performance. Furthermore, when the causal relation was examined, researchers saw that there is a two way causal relation between academic performance and substance use.

There is, also, a negative correlation between academic performance and onset in delinquency. The worse a student's academic performance is, the more likely they are to become involved in delinquent behavior at an early age, and at a later age the more likely they are to become involved in serious delinquent behaviors. On the other hand, study results also showed that there is a bidirectional causal effect between academic performance and delinquency. The earlier students become involved in delinquency, the less likely they are to become successful in their academic performance. Therefore, early intervention programs are critical in terms of preventing delinquency among students or increasing academic performance (Maguin & Loeber, 1996).

Furthermore, school success increases future expectancies (aspiration) and to be successful at school students should spend more time doing their homework. Academically competent students are almost three times less likely to engage in delinquent behavior when compared to academically incompetent students (Hirschi, 1969). Lack of academic aspiration and ambition is a high risk factor for delinquency among adolescents (Hirschi, 1969).

For example, a study conducted among college students to understand the effect of school adjustment on rebellious behavior showed that educational aspiration and academic achievement are strongly negatively correlated with rebellious behavior. Furthermore, the researcher claimed that school adjustment is more strongly predictive than strain in terms of understanding rebellious behavior among students (Polk, 1969).

The effect of peer influence has also been observed in the measurement of academic achievement. For example, according to a study conducted by Razzino and his colleagues (2004), there is a negative correlation between having a friend who is academically both

motivated and successful at school and drug use. In other words, the more adolescents have academically motivated friends the less likely they are to become drug users (Razzino et al., 2004).

According to Rhodes and Reiss (1969), there might be several reasons why low grades cause delinquency. First, low grades might increase stress which might in turn be diverted to breaking the rules of society and school. As a result of such behavior, the student might be labeled with such inconvenient behavior which might result in a continuation of delinquent behavior. Second, there might be other intervening variables that might not be measured and can change result of the study. Third, there might be psychological differences between students that might affect both academic performance and delinquency. Fourth, acquired cultural values prior to education might have an effect on both education and delinquency, such as disapproving of education or having a problem with authority (A. Rhodes & Reiss, 1969).

Aspiration and expectation

Differing from strain theory, social control theory assumes that expectations and goals of an individual prevents him/her from committing a crime (Hirschi, 1969). In other words, social control theory claims that an individual who does not have aspirations and ambitions is more likely commit a crime than others (Hirschi, 1969). In his study, Hirschi found a strong relation between commitment (educational aspiration) and delinquency (Greenberg, 1999).

Even though social control theory and most studies propose that there is an indirect correlation between commitment and both delinquency and substance use (Erickson et al., 2000; Hirschi, 1969; Kaplan et al., 1984), Agnew (1991) found a direct correlation between the two variables.

Hirschi emphasizes the importance of aspirations in the prevention of delinquency. According to Hirschi, there is a negative correlation between aspiration (expectations based on skills) and delinquency. An increase of aspiration has the effect of decreasing delinquency among adolescents. For example, a study conducted among 1459 university students

showed that there is a negative correlation between commitment to higher education and drunk driving. According to researchers, 22.5 percent of students who are committed to higher education drive a car under the influence of alcohol while 34.6 percent of students who are not committed to higher education students are drunk drivers (Durkin et al., 2007).

However, it is difficult to measure the intensity of aspiration because it varies from one person to another. On the other hand, Hindelang (1973) stated that It is not important whether expectation can be achieved or not; both aspiration and expectation have the same level of preventive factors with respect to delinquency (Hindelang, 1973; Hirschi, 1969).

In normal social life there are some rules and sequences that occur from passing from adolescence to adulthood, such as education, working in a regular job, etc. However, an adolescent who does not continue his/her further education gains his/her job before his/her counterparts. He/She gets the benefits of having adulthood in the early ages such as earning money and being independent; however, in this case an adolescent also gains new habits such as drinking, smoking and dating before his/her counterparts do, which are seen as adult behaviors. The second type of benefits cannot be controlled without having adulthood responsibilities, such as taking care of family and heavy responsibilities at work. As a result of these developments, the ties of adolescents who behave like adults begin to weaken. Furthermore, losing expectancy in higher education causes an increase in use/practice of cigarette, alcohol, dating and driving; as a result, the rate of delinquency increases among adolescents whose lives imitate adulthood. Therefore, early adulthood can make adolescents vulnerable for delinquency. On the other hand, when negative relations between drinking, smoking and delinquency are considered, delinquency becomes inevitable for adolescent. Moreover, Hirsch's study showed that the lower the age when one first starts smoking cigarettes and consuming alcohol, the higher the probability of delinquency in further years. In fact, drinking has a stronger effect on future delinquency than smoking (Hindelang, 1973; Hirschi, 1969). For example, Hindelang found in his study that students who drink, smoke and date are almost five times (4.5) more likely to be involved in

delinquent behavior than their non-drinker, smoker and dater counterparts (Hindelang, 1973).

According to Hirschi, a person who does not continue his/her further education enters social life and faces the difficulties of adulthood in an early adolescent role, which includes earning money and working in a regular job, as well as smoking, drinking and dating. Although some prior studies claimed that early work experience tends to increase delinquency among adolescents, in their study Ngai and Cheung (2003) found that there is a negative correlation between work experience and illegal driving; furthermore, there is a negative correlation between attachment to work and delinquency. In other words, attachment to work and working experience have the effect of lowering the rate of delinquency (Ngai & Cheung, 2003)

According to Hirschi (1969), like early working experience, driving a car at an early age has a higher risk factor for involvement in delinquency; in fact, there is a strong negative correlation between dating and delinquency. Hirschi explained the correlation between driving a car and delinquency in the context of teenage culture; however, he noted that this assumption may not be correct among adults (Hindelang, 1973; Hirschi, 1969). For example, a study based on the Monitoring Future Study showed that there is a positive correlation between driving a car for fun, going to parties, dating and delinquency. According to researchers, these behaviors cause delinquency because they are committed outside the realm of supervision of adolescents' families (Osgood, Wilson, O'Malley, Bachman, & Johnston, 1996).

Involvement

As one of the social control elements, involvement is measured with time spent in conventional activities, such as homework, sports activities, and social activities. According to social control theory, there is a negative correlation between involvement and both delinquency and substance use (Hindelang, 1973; Hirschi, 1969). On the other hand, measurement of involvement is more difficult than that of other elements of social control theory. In fact, involvement basically refers to time spent in conventional activities;

otherwise, dating and working should be part of involvement because these types of activities also require time (Hirschi, 1969). An old saying, "Idle hands are evil's hands" reflects adolescents who does not fill their spare time with conventional activities and are thus more likely to be involved in delinquency (Schafer, 1969). However, some studies included working hours and sports activities which are not organized by schools (Durkin et al., 2007; J. S. Lopez et al., 2001; Miller, Melnick, Farrell, Sabo, & Barnes, 2006). For example, a study that was conducted to reveal the characteristics of drug users showed that "going dancing and drinking" and availability for the weekend are two of the strongest characteristics of drug users and a higher risk factor for drug using (J. S. Lopez et al., 2001). Furthermore, spending free time with family is a lower risk factor for drug users (J. S. Lopez et al., 2001).

In this context, there are several studies which claimed that engaging in sports activities increases the risk of involvement in delinquency, but there are some others that claimed the opposite. For example, one study showed that school commitment and attachment have a negative effect on delinquency among African American students; however, there is a positive correlation between school involvement and delinquency. According to this study, involvement in sports activities is linked to an increase in delinquency among African American male students. Researchers believe that focusing on activities other than academic achievement is a higher risk factor for delinquency. However, the same results could not be found for white males (Cernkovich & Giordano, 1992).

Another study which was conducted in New England among 1366 Patriot High School students showed that involving oneself in non-sports-oriented school activities decreases risky behavior while involving oneself in sports-oriented school activities increases risky behavior among adolescents, and this correlation was found significant contrary to social control theory assumptions (Booth et al., 2008).

However, a study that was conducted among 585 high school students showed that males who are involved in sports activities are less likely to be involved in delinquency (seven percent) compared to non-sports-oriented males (17 percent) (Schafer, 1969). Furthermore,

there is a positive correlation between academic achievement and involvement in sports activities. Adolescents who are successful in their class are more likely to be involved in at least one type of sports activity. For example, in his study, Schafer (1969) found that 40 percent of successful students are involved in sports activities, while only 18 percent of successful male students did not involve themselves in sports activities (Schafer, 1969).

According to social control theory, youths have more spare time than adults because they are not required to take care of their families or they do not have as many dependents in the family as adults do. Therefore, adolescents who do not engage in conventional activities look for other activities which might include delinquent behavior. For example, students who do not spend time in studying or doing homework will hang out, talk with friends or ride cars, which are all high risk factors for involvement in delinquency among adolescents. Hirschi stated that possibility of committing crime is doubled among those who drive a car for five or more hours when compared to their non-driving counterparts (Hirschi, 1969).

Even though social control theory emphasizes that involvement is one of the preventive factors in the context of delinquency, studies showed that there is a weak correlation (Greenberg, 1999; Hirschi, 1969), while others claimed that there is no correlation between the two variables (Miller et al., 2006; Paternoster et al., 1982; Rankin, 1976). For example, in his original study, Hirschi's findings showed that the relation between involvement and delinquency is weak (Hirschi, 1969).

Similar results were acquired from a study based on the Richmond Youth Survey. According to this study, 48 percent of children who study for 1 hour are not involved in any type of delinquent act, while 52 percent of the children who study for 5 hours are not involved in any type of delinquent act. Only four percent of variance could be observed in the study (Greenberg, 1999).

Moreover, a study that was conducted among 1153 samples aged between 17 and 28 showed that there is a negative correlation between spending time in conventional activities and delinquency (Alarid, Burton, & Cullen, 2000).

On the other hand, even though some studies found a negative but weak correlation between time spent doing homework and delinquency, statistical results showed inconsistencies. For example, a study conducted by Hindelang (1973) showed that the equation of time spent in school activities did not give healthy and steady increasing or decreasing results. If the results were put into the chart, probably the line would be fluctuation. In fact, when most of those who are active and not active at all are analyzed, the study shows a positive relationship between time spent in school activities and delinquency (Hindelang, 1973).

Another study conducted in New England among 1366 Patriot High School students showed that involvement has a negative and statistically significant effect on both serious delinquency and risky behavior. However, study results showed that the direction of correlation turns to positive when too much involvement is observed (Booth et al., 2008).

On the other hand, a study conducted among 1459 university students measured three types of involvement (including spending hours in work, study and extracurricular activities). This study showed varieties among different measurements. According to this study, there is a negative correlation between studying hours and drunk driving, but there is a positive correlation between working hours and drunk driving. For example, 35.4 percent of students who study for up to five hours drive while they are drunk, 23.9 percent of students who study between six and 15 hours drive while they are drunk, and only 13 percent of students who study at least 16 hours were drunk drivers; however, the working hours measurement showed that 37.3 percent of students who work at least 16 hours drive a car while under influence of alcohol while only 17 percent of students who work between 6 and 15 hours are drunk drivers. Furthermore, spending hours with extracurricular activities produced more complicated results (Durkin et al., 2007). According to researchers, the unexpected results relating to working hours and drunk driving can be related to the association of working students with their colleagues (Durkin et al., 2007).

However, some other studies do not support the significance of involvement in preventing delinquency. For example, a study conducted among 300 university students showed that

even though attachment, commitment and belief are statistically significant, involvement was not statistically significant in delinquency (Paternoster et al., 1982).

A study based on the Family and Adolescent Study among 699 adolescents aged between 13 and 16 showed that there is no correlation between engaging in sports activities and aggressive behavior; in fact, adolescents who engage in sports activities in school are not more or less likely to be involved in both in family and non family violence (Miller et al., 2006). However, adolescents who engage in sports activities and identify themselves as jocks are more likely to be involved in non family violence than others (Miller et al., 2006). Therefore, it can be concluded that feeling like a jock constitutes a high risk factor for delinquency than actually being involved in sports activities.

Another study conducted among 385 seventh and eleventh grade high school students showed that there is no correlation between involvement in conventional activities such as sport, clubs, recreational activities and delinquency (Rankin, 1976).

Explanation for involvement

According to researchers, there is a negative relationship between job status and engaging in delinquent behavior. There might be three reasons for this specific case. First, people who lack stable job opportunities engage in delinquent acts because there is not any involvement in a job; in fact, those people do not spend their time in conventional activities, which results in them engaging in other, illicit activities such as delinquency. Second, from a commitment perspective, people who do not have anything to lose engage in delinquent acts. If people do not have regular jobs, property, or assets, their bonds to social norms weaken and they try to find what they do not have with illegal activities. Third, if people have a weak attachment to the conventional values (belief), they break the bond and manipulate opportunities to commit a crime because they think they cannot get enough material things in legal ways (Wadsworth, 2000).

Furthermore, as said before, except for organized crimes, which need full time dedication, most crimes occur in instance and people need to engage with conventional activities to stay

away from delinquent behavior. At this point, conventional activities become meaningful in the measurement of involvement. For example, reading newspapers or watching television do not count as conventional activities. Therefore, again, involvement should be measured with the time spent engaging in conventional activities. In this perspective, Hirschi measured time spent in school activities such as homework to understand the level of involvement. However, this measurement will not be limited to only involvement but also will affect commitment and attachment (Hirschi, 1969)

Belief

As one of the social control elements, belief has been investigated by many researchers. According to social control theory, there is a negative correlation between belief and both delinquency and substance use. In fact, belief has a preventive role from delinquency. Hirschi (1969) measured belief in accordance with attachment to conventional institutions and laws. For example, he used attitudes toward police and law in his study.

Appeal to higher loyalties shows its effect in the case of individuals having to make a selection between two options. For example, during this process, if an individual has to decide between his friends and laws, eventually he will select the one toward which he has a stronger loyalty, which might be the delinquent side in some cases (Hirschi, 1969).

As previously mentioned, parents are role models of children. If there is a sufficient attachment to parents, children look for the approval and love of their parents in their behavior, which is a reward for children. At this point, social regulations will be meaningful for children. If there is not enough attachment between children and parents, the only limitation will be an escape from a penalty when a child does something inappropriate. The same perspective is valid with respect to the police. If children have respect toward the police, eventually they will respect the laws. Hirschi's study results showed that an increase in respect toward the police decreases the likelihood of delinquency; or from another perspective, involvement in delinquent behavior results in a decrease in respect toward the police. In the same direction of the above mentioned relation, a decrease in respect toward the police results in a decrease in respect toward the law (Hirschi, 1969).

There is, also, a correlation between punishment after people are caught subsequently to committing a crime and respect or belief in the authority. In other words, the respect of people toward police increases when they understand/see that they will be caught and apprehended as a consequence of their criminal behavior, which is one of the elements that gives strength to the belief. Escaping from consequences of crime is encouragement for people to commit further delinquent acts (Jensen, 1969).

Even though social control theory assumes that there is a negative correlation between delinquency and belief, various studies found either supportive or contrary results in the measurement of belief. Furthermore, some of the researchers who found supportive results claimed that there is a direct correlation between delinquency and belief while others claimed that there is an indirect correlation. However, Hirschi (1969) asserts, in his original study, that there is direct correlation between the two variables. Moreover, according to Hirschi, belief might be a preventive factor by itself regardless of other elements of social control theory.

In *Causes of Delinquency*, Hirschi (1969) found that there is a strong negative correlation between belief and delinquency. According to his study, 29 percent of students who have respect toward the police are involved in delinquency while 66 percent of students who have average or no respect toward the police are involved in delinquency. In the second step of belief measurement, Hirschi asked “if it is okay to get around the law you can get away” and results showed that again there is a negative correlation between respect toward the law and delinquency. According to research results, 70 percent of students who agree with the statement are involved in delinquency while only 29 percent of those who disagree with the statement are involved in delinquency.

In his study, Hindelang (1973) also found similar results. According to Hindelang, 19 percent of males who have respect toward the police are involved in delinquency while 76 percent of students who do not have respect toward the police are involved in delinquency. On the other hand, 76 percent of adolescents who agree with the statement are involved in

delinquency while only 33 percent who disagree with the statement are involved in delinquency.

These two foundation studies showed that respect toward laws has a stronger effect in the prevention of delinquency compared to respect toward the police. In this context, a study conducted among 3065 students proved that obeying the laws has the strongest explanatory power compared to other belief elements (Krohn & Massey, 1980b).

Other studies which have been carried out by Ozbay (2008), Durkin et al. (2007), Paternoster et al. (1982), Wiatrowski et al. (1981), Alarid et al. (2000), Ngai & Cheung (2003), Ozbay & Ozcan (2006), Krohn & Massey (1980b), Benda (1997), Galaif et al. (2007) found similar results. However, Rebellon (2002) found inconclusive correlation between belief and delinquency.

According to those studies; belief is statistically significant and negatively correlated with assault, school delinquency and public disturbance (Özbay, 2008); there is a negative correlation between belief and delinquency (Wiatrowski et al., 1981; Paternoster et al., 1982; Ngai & Cheung, 2003; Ozbay & Ozcan, 2006; Krohn & Massey, 1980b; Alarid et al., 2000); there is negative correlation between conventional belief and alcohol use (Benda, 1997); there is a negative correlation between respect toward authority and drunk driving (Durkin et al., 2007). Furthermore, some researchers found that belief is the strongest predictor for delinquency delinquency (Paternoster et al., 1982).

However, another study that was conducted by Johnson and his colleagues (2001) using the same data could not find a significant correlation between delinquency and belief.

On the other hand, researchers found that there is negative correlation between age and respect toward both police and the law. According to a study conducted among students who are between 7th grade and university, none of the university students believe that people who commit a crime are caught and punished for their illegal activities, while only half of the 11th grade students believe and 70 percent of the 7th grade students believe that criminals are apprehended and punished. Nevertheless, 72 percent of the students have

respect toward the police, while 37 percent of them do not have trust in the police in terms of arresting and punishment. Furthermore, only 10 percent of the students believe it is okay to break the law while 27 percent of the students disagree the statement (Jensen, 1969). According to the researcher, this reverse correlation can be explained with the effect of misleading mass media information (Jensen, 1969).

In this context, mass media and the perception of prevalent delinquency in the neighborhood has a significant role in terms of attitudes toward institutions and laws. According to researchers, fear of crime and being a victim of crime enhances one's negative related perception. For example, a study intended to measure fear of crime in a neighborhood showed that the more people witness gang and drug activities in their neighborhood, the more they believe the crime rate is increasing/high in their environment, which eventually decreases the peoples' respect toward both the police and laws. Therefore, the perception of crime is related to observance of delinquency in the neighborhood. In this correlation, television and newspapers have an effect in terms of increasing delinquency perception (Crank, Giacomazzi, & Heck, 2003). Therefore, Jensen (1969) proposed that the success of police and the proper application of laws increase attachment to belief. Furthermore, on the contrary to prior studies, the study results showed that in the measurement of belief, respect toward police is a stronger predictor than attitudes toward the law (Jensen, 1969).

Religiosity

The deterrence effect of religiosity on delinquency has been under discussion for more than three decades among the scientists and in modern science; in fact, this controversial discussion goes back to late 60s with the "Hellfire Hypothesis" (Cochran, Wood, & Arneklev, 1994; Wallace et al., 2007). Most prior studies focused on revealing the characteristics of drug users (Cochran et al., 1994). However, current studies overwhelmingly introduce that there is a negative correlation between religiosity and delinquency, even though some others claim that there is no correlation.

So far, criminologists investigated the relation between religiosity from two perspectives. While some researchers look at the direct relation between delinquency and religiosity, some others found the relation of delinquency and religiosity through criminological theories, such as social control and differential associations (B. Johnson et al., 2001).

In his original study, Hirschi did not mention the effect of religiosity on delinquency; in fact, he did not use religiosity as an element of social control theory (Hirschi, 1969; Marcos et al., 1986). However, in his later studies with Stark (1969), they investigated the relation between religiosity and delinquency. During their study, Hirschi and Stark (1969) could not find a correlation between the two variables. Moreover, they claimed that the correlation between religiosity and delinquency is spurious (Hirschi & Stark, 1969). According to Hirschi and Stark (1969), even though there is no causal relation between religiosity and delinquency, adolescents who attend church activities are slightly more likely to abide by laws and respect the police, but there is no difference between church attendees and non-attendees in terms of believing the sanctions for the afterlife and involvement in delinquency. In another words, both groups believe the same amount of correctness and wrongfulness with respect to being involved in delinquency. Further, researchers claimed that they are accused of going against common sense, which emphasizes the importance of religiosity in preventing delinquency. They assert that they are not against the internalization of moral values; but, in the contemporary world, they question the role of religion if it helps the internalization of moral values and the belief of penalization after death according to people's misbehaviors (Hirschi & Stark, 1969). On the other hand, other researchers criticized those studies that claimed that there is no correlation between religiosity and delinquency, as being incompetent because of methodological limitations and defective (Simons, Simons, & Conger, 2004).

However, latest majority of recent studies stated that there is a strong correlation between religiosity and delinquency (Simons et al., 2004) and provided a huge amount of support in the explanation of delinquency vis-à-vis religiosity (B. Johnson et al., 2001).

Religion plays a key role for setting and enhancing social control, accepting social norms and moral values, and decreasing conflicts among people. Therefore, religion is assumed to

decrease deviance in society (Cochran et al., 1994). The most accepted and widespread religions, such as Christianity, Judaism and Islam, call people to live in accordance to universal moral values such as being honest, obeying and respecting the laws, parents, other social members, and conventional values, refraining from stealing, cheating, killing, etc. Moreover, those religions invite people to live in accordance to those rules that are under the protection of God. The only purpose of these rules is to urge people to live in peace and harmony. In case of crossing those lines (violating the rules), there are some deterrents; in fact, according to many religions people will be punished by God for violating the religious rules either in the world or after death; and those who obey those rules will be rewarded again either in this world or after death (Simons et al., 2004; Welch, 2005).

Although there is extensive support for the theory that religiosity has a negative effect on delinquency, there are not many theoretical answers for how religion affects delinquency (Welch, 2005). At this point, attachment, the element of social control theory, might help explain this correlation because according to social control theory, moral values most times pass from parents to their children (Simons et al., 2004). Social control theory claims that attachment to conventional values begins in the family in the early ages, as well as religiosity (Marcos et al., 1986). In fact, the preventive factor of religiosity is stronger in the early ages than in later ages (Wills, Yaeger, & Sandy, 2003). The fear of suffering from inappropriate behavior is the main motive for people refraining from delinquency (Welch, 2005).

According to researchers, the effect of religiosity should be evaluated from various perspectives, such as individual, coping mechanism, and social network. While individual level religiosity increases values and attitudes toward conventional values, the social network increases control on an individual and provides him/her with a safer environment, including conventional peers, to spend time with (Welch, 2005). Other studies also emphasized the importance of involving oneself in religious groups and communities in terms of delinquency prevention (Evans, Cullen, Dunaway, & Burton, 1995). On the other hand, by developing a coping mechanism, the individual finds a solution to his/her problems in the most appropriate manner. Beside its direct effect, religiosity helps reduce the negative

effects of stress or life affair which might cause one to use drugs or engage in delinquency (Wills et al., 2003). Furthermore, religious activities bring people together and set a social network that helps supervise people (Welch, 2005).

In this context, Welch (2005) conducted a study among 350 subjects who are at least 18 years old and living in Ohio City to measure the effect of religiosity on self control. The study found that there is a positive correlation between religiosity and self control. The more people are religious, the more they have self control. Moreover, there is a statistically significantly negative and independent correlation between religiosity and delinquency. Even interval variables such as socio-economic status added into the equation results have shown similar results. Furthermore, there is also a negative correlation between self control and delinquency (Welch, 2005).

According to researchers, the measurement of religiosity is very important because it might affect the results of the equation, and studies that could find support for the relation between delinquency and religiosity are lacking of adequate measurement. For example, according to Burkett and Warren, most studies measured religiosity in accordance to church attendance; however, involvement in church activities and practices might offer different results (Burkett & Warren, 1987).

So far, researchers used various variables in the measurement of religiosity. For example, religious activity was measured with reading and listening to religious documents while religious salience was measured with whether one agrees with religious belief and hellfire. In fact, religious belief and hellfire represent belief in supernatural sanctions such as punishment after death (Evans et al., 1995). Another study used the “contextual level of religiosity”, which refers to the level of school and community religiosity where an individual lives (Wallace et al., 2007).

On the other hand, the type of correlation between religiosity and both delinquency and substance use is observed either directly or indirectly. While some researchers found a direct relation, some others found an indirect relation through peer association, and yet

others could not find any correlation. Moreover, according to some researchers, religiosity can explain drug use; however, it cannot explain alcohol use (Benda, 1997).

For example, a study conducted among 264 high school students showed that there is an indirect correlation between religiosity and marijuana, and peer association is the intervening variable. Furthermore, researchers claimed that adolescents who have strong ties to religiosity are selecting their friends from those who share the same religious beliefs (Burkett & Warren, 1987).

Another study, based on the longitudinal National Youth Survey, and conducted among 1725 adolescents aged between 11 and 17 to measure the effect of religiosity on delinquency showed that there is a direct and negative correlation between religiosity and delinquency (B. Johnson et al., 2001).

Furthermore, a study conducted among 2626 adolescents showed that even though religiosity has a direct and significant effect on alcohol, marijuana and amphetamine use, it has the smallest effective element compared to parental and educational attachment, conventional values and drug using peers (Marcos et al., 1986).

A study based on the Iowa Youth and Families Project and Family and Community Health Study showed that there is a negative indirect correlation between religiosity and delinquency among adolescents through delinquent peers (Simons et al., 2004). However, according to researchers, parental religiosity has an effect on male delinquency but not on female delinquency. On the other hand, there is a positive correlation between the quality of communication with adolescents and adolescent religiosity. Therefore, researchers concluded that parental religiosity commitment effects adolescent delinquency indirectly through child religiosity, selection of peers and delinquency (Simons et al., 2004).

On the other hand, other studies found a negative correlation between religiosity and both delinquency and substance, use regardless of whether it is direct or indirect. For example, a study conducted among 1459 university students showed that there is an inverse correlation between religious commitment and driving a car while under the influence of alcohol.

According to the study, students who have strong religious commitment are less likely drunk drivers (Durkin et al., 2007).

Another study conducted among 555 individuals to measure the differences between religious activity such as reading and listening to religious dogma, religious salience such as whether one agrees with religious belief and hellfire (i.e., believing in supernatural sanctions such as punishment after death) showed that over all there is a significant negative correlation between religiosity and delinquency. Thus, religiosity could explain delinquency among individuals at a rate between 21 percent and 24 percent. In the measurement of the two variables excluding religious activity, there could not be found any significant correlation between those variables and overall delinquency. However, religious activity was statistically significant in the context of all types of delinquency and could explain delinquency at a rate between 25 percent and 28 percent (Evans et al., 1995). Furthermore, even though prior studies found a correlation between religiosity and minor and ascetic delinquency, the current study proved that there is a correlation between religiosity and all types of delinquency (Evans et al., 1995).

The National Longitudinal Study of Adolescent Health showed that there is a negative correlation between religiosity and substance use. A high level of religiosity has the effect of decreasing the risk of both onset and regular drug use (Bree & Pickworth, 2005).

According to researchers, children who have stronger religious attachment stay away from delinquent and inappropriate behaviors because these behaviors go against their moral codes, and this decreases the risk of delinquent behaviors (Simons et al., 2004). Furthermore, religiosity is a preventive factor in association with delinquent peers. Similar results were found in Hirschi's original study (1969), which states that there is a negative correlation between attachment to conventional values and association with delinquent peers.

In a treatment program of 68 drug users, researchers used an interesting method including religious affiliation during treatment. In their study, researchers put the drug users in a

house with other users, including ex drug users, missionaries, etc. and had them live together. After several weeks of contamination (detoxication), drug users enrolled in groups where members prayed regularly and believed they were behaving as missionaries. As a result of treatment, according to Christian beliefs, more than 50 percent of drug users stopped drug using for at least five or more years and succeeded in their treatment program (Ng, 2002).

Other studies also found that there is a negative correlation between religiosity and drug use. The more individuals are attached to religion the less likely they are to use drugs (J. S. Lopez et al., 2001).

Furthermore, test results showed that religiosity is statistically significantly different for female drug users among the high school students; however, the variation between males and females were not many. Furthermore, researchers claimed that religious involvement is an important factor in the measurement of religiosity (Wills et al., 2003).

(Ngai & Cheung, 2003; Wills et al., 2003).

Other studies, which investigate various types of religious elements, such as religious salience, church attendance and religious involvement, also found a negative correlation between religiosity and both delinquency and substance use. For example, a study with a sample of 1121 adolescents aged between 13 and 18, that aimed to measure the difference between church attendance and religious influence on delinquency showed that religious influence is more significant than church attendance and correlated with truancy, runaways, sexual intercourse, damage of school property and substance use, rather than church attendance. Researchers found that religiosity has a greater effect on status offences, followed by substance use and lesser personal crimes, such as involvement in a fight and gang fight. even though, overall, there is a negative correlation between religiosity and delinquency among adolescents (Sloane & Potvin, 1986).

A study based on data acquired from Monitoring the Future and Youth Education and Society aimed to reveal differences between the individual level of religiosity and the contextual level of religiosity on substance use showed that in total religiosity has a negative

correlation with marijuana use. However, when both variables were measured differently, in the case of the individual level of religiosity, a negative correlation was found with cigarette use and binge drinking, while in the case of the contextual level of religiosity such as school and community religiosity, a significant correlation with cigarette use and binge drinking could not be found (Wallace et al., 2007).

Another study based on the National Youth Survey showed that there is a negative correlation between religiosity and marijuana use. In fact, according to this study, religiosity both prevents delinquency and helps to curb drug use among drug user adolescents (Chu, 2007). However, researchers could find same effect between religious salience and religious activities on substance use. Religious activities, such as attending church activities and religious practices are stronger protectors than religious salience. For example, while both religious activity and salience are preventive in the case of beginning drug use, only religious activity helps with quitting drug use (Chu, 2007). According to researchers, regular involvement in religious activities might play a key role in terms of quitting marijuana use (Chu, 2007).

However, some studies either could not find a correlation between religiosity and delinquency or a positive correlation. For example, a study conducted among 1093 high school students showed that there is no correlation between religiosity and alcohol use; but, alcohol use is negatively related to religiosity with 10 percent of variance. On the other hand, there is a negative bidirectional correlation between drug use and religiosity (Benda, 1997). Researchers try to explain the reason why religiosity does not have explanatory power on alcohol use as the acute effect of alcohol when compared to other types of drugs (Benda, 1997).

Another study conducted among 1121 youths aged between 13 and 18 claimed that regardless of how much children are involved in church activities, they still use drugs (Sloane & Potvin, 1986). Some researchers took a step further and said that actually there is a positive relation between religiosity and drug use (Cochran et al., 1994). However,

researchers criticized those studies of being conducted under the totally political approaches.

Interrelation among social control elements

As much as the relation between social control theory elements and delinquency exists, correlations among social control theory elements are the subject of many studies. According to Hirschi (1969), there is a positive correlation between social control elements and a negative correlation between social control elements and delinquency. In other words, the more an individual is attached to family, the more likely he/she is attached to other elements of social control theory. Moreover, the more individuals are attached to family, school, involvement, commitment and belief, the less likely they are to be involved in delinquency (Hirschi, 1969).

There are various models to describe the correlation between social control elements even though it is claimed that all social control elements are independently correlated with delinquency; furthermore, according to most of researches, attachment to family is the leading element in developing other elements such as commitment, involvement and belief because all these values are gained within family during the process of communication among family members (Benda, 1997).

So far, most studies found supportive results for social control theory assumption. For example, a study based on the Youth Transition Survey showed that there is a causal and direct correlation between parental attachment and commitment to education, occupational aspiration, attachment to school and involvement. Furthermore, family attachment is observed as positively correlated with all social control elements but dating (Wiatrowski et al., 1981); in fact, social control theory claims that there is a negative correlation between dating and delinquency (Hirschi, 1969).

A study conducted among 300 university students showed that there is a positive correlation between grades (GPA) and parental attachment. Students whose grades are high have greater attachment to their parents than those students who have lower grades. Moreover,

the negative correlation between grades and delinquency remained significant (Paternoster et al., 1982).

In their research, Liska and Reed (1985) found out whether delinquency affects family and school attachment, or on the other hand, family and school attachment affect delinquency by using data collected from 2277 high school male students. According to research results, family attachment has a direct affect on delinquency; school attachment has an indirect effect on delinquency. There is a positive correlation between family attachment and school attachment; however, there is a negative relationship between delinquency and both family and school attachments. Furthermore, family attachment has a stronger effect on delinquency when compared to school attachment; and school attachment has a stronger effect on family attachment than delinquency. When the causal relation is investigated, the circle goes from parental attachment to delinquency, from delinquency to school attachment and from school attachment to family attachment. Furthermore, the current study proves that delinquency affects school attachment. However, researchers emphasized the importance of other variables which affect the causal relationship (Liska & Reed, 1985), such as family structure (R. Johnson, 1986), in the measurement of the correlation between delinquency and school attachment.

According to researchers, there might be several reasons why family attachment has a direct effect and school attachment has an indirect effect on delinquency. First, although family attachment might not be affected from a children's behavior standpoint, school attachment might be affected from students' behavior; second, children engage in delinquent behavior out of sight of their families and as long as families do not learn of their children's inappropriate behavior from an official, they are not aware of it; therefore, students continue their inappropriate behavior and their teachers are aware of those attitudes. In this perspective the attachments of students to who spend their time in criminal behaviors weaken (Liska & Reed, 1985).

Another study based on data collected by Nankai University and the Tianjin Communist Youth League showed that there is a strong positive correlation between family attachment

and school attachment. On the other hand, there is a negative and significant correlation between attachment to school and delinquent peer association. There is also a negative and both direct and indirect correlation between family attachment and delinquent peer association (Zhang & Messner, 1996).

In his study, Agnew (1991) found that even though it is weak, there is a direct and positive correlation among social control theory elements. For example, commitment affects school attachment positively and parental attachment affects commitment positively.

Ozbay and Ozcan (2006) found that there is a positive correlation among attachment to teachers, conventional friends, commitment to school, attachment to conventional social norms of society and school involvement; however, all elements are negatively correlated with delinquency.

A study conducted by Aliverdinia and Pridemore (2007) showed that there is a positive correlation between attachment and belief, whereas there is a negative correlation between family drug involvement and belief. Attachment also enhances self esteem, which means there is a positive relation between attachment and self esteem. Furthermore, the measurement of belief toward acceptance of laws showed that attachment to parents, commitment to achievement, involvement in school, less association with delinquent peers and religiosity are positively related to beliefs (Benda, 1997).

Additionally, researchers claimed that there is positive correlation between religiosity and social control elements; however, there is a negative correlation between religiosity and delinquency. For example, a study based on the National Youth Survey among 1725 youths aged between 11 and 17 showed that religiosity has a direct effect on belief, attachment to family, attachment to school and commitment to school (B. Johnson et al., 2001).

According to social control theory, there is a negative relation between parental attachment and delinquent peer attachment. The more strongly adolescents are attached to their parents, the weaker the attachment to delinquent peers is because the traditional family role requires the controlling of who can be the children's friends. However, there is a

positive relation between parental attachment and attachment to peers. On the other hand, there is a negative correlation between attachment to delinquent peers and commitment (Hirschi, 1969).

Even though in Hirschi's original study (1969) social control theory focuses more on peer association than delinquent peer association, it is important to emphasize that subsequent researchers developed social control theory and measured delinquent peer effects on delinquency among adolescents.

So far, studies which were conducted to find out the correlation between association with delinquent peers and other social control elements showed that there is a negative correlation between them. However, researchers found a positive correlation between delinquent peer association and delinquency. For example a study which was conducted among 7500 adolescents attending 10th grade to 12th grade showed that there is a negative correlation between parental control and peer delinquency. In other words, adolescents who are more controlled by their parents are less likely to associate with delinquent peers. Furthermore, according to researchers, parental monitoring is a strong predictor in delinquent peer association (Tragesser, Beauvais, Swaim, Edwards, & Oetting, 2007).

A study conducted among 4625 high school students from the 9 and 12th grades in California and Wisconsin showed that having delinquent peers is negatively correlated with both parental attachment and commitment. Furthermore, the study showed that parental attachment and commitment can explain 18 percent of having delinquent friends (Erickson et al., 2000).

Another study that was conducted among 1065 students showed that there is a negative correlation between association with drug user peers and both attachment to family and attachment to school. In other words, the weaker tie with family and school, the stronger association with drug user peers. The relation is observed as indirect for family attachment, while attachment to school is seen as direct. Furthermore, this relation is reversal (Henry,

2008). On the other hand, there is a positive correlation between attachment to family and attachment to school (Henry, 2008).

Moreover, a study based on Rochester Youth Development Study showed that there is a positive and indirect relation between delinquent peers and delinquency through peer reaction; furthermore, there is a positive relation between delinquency and delinquent peers (T. Thornberry, Lizotte, Krohn, Farnworth, & Jang, 1994). However, the relation between drug use and delinquency has not shown similarities. According to researchers, drug use behavior begins after delinquency; therefore, researchers assume that association with drug user peers comes after involvement in delinquency (T. Thornberry et al., 1994).

On the other hand, attitudes toward delinquency (delinquency belief) are positively related to delinquency and delinquent peers. In other words, the more individuals positively approach delinquency, the more likely they are to become involved in delinquent behavior and be in association with delinquent peers. From a contrary perspective, involvement in delinquency also contributes to a positive perception toward delinquency. In other words, the more an adolescent is involved in delinquency and become friends with delinquent peers, the more he or she acquires positive deviant beliefs (T. Thornberry et al., 1994).

A study based on the South Florida Youth Development Project, Longitudinal Study showed that there is a positive correlation between obeying laws and family attachment. In other words, the more adolescents are attached to their families, the more likely they obey the laws; moreover, the more they obey the rules, the less likely they become involved in minor or serious delinquency and drug use (Sokol-Katz et al., 1997).

A study conducted for the purpose of understanding the effect of peer and parent influence on substance use showed that peers are more likely to exert influence with respect to drug use than parents; however, parent influence cannot be dismissed (Allen, Donohue, Griffin, Ryan, & Turner, 2003).

Another study that was conducted to measure the effect of family structure on the friendship network showed that a broken family has strong and direct effect on friendship networks among adolescents (Sampson & Groves, 1989).

Finally, even though some researchers claim that attachment to peers decreases attachment to parents, Hirschi claimed that there is a positive relation between attachment to parents and peers. However, Hindelang (1971) could not find enough support for Hirschi's findings. According to Hindelang, for females there is no correlation between attachment to parents and attachment to peers. They are both independently correlated with each other; nevertheless, for males, there is a weak positive correlation between two variables.

Socio-Economic Status (SES variables)

Effect of socio economic status such as age and gender on both delinquency and drug use is a controversial issue. While some researchers claim that there is no correlation between socio economic status and delinquency, others claim that there is. For example, a study based on the Richmond Youth Project showed that socio-economic status does not have an effect on delinquency (Matsueda & Heimer, 1987). However, another study which was conducted among 229 Hong Kongies showed that there is a correlation between age, gender, being a student, working experience, income, unemployment and delinquency (Ngai & Cheung, 2003).

In the following section the effect of socio economic status on both delinquency and drug use is discussed. There are two domains that are used to explain the characteristics of drug users, such as age and gender.

Age

According to statistics, the age of initial drug use is continuously decreasing among adolescents and youths (C. Turner, Russell, & Brown, 2003) and early onset drug use is both causing severe problems and enabling the introduction of more advanced drugs in future years (NIDA, 1997; T. Rhodes et al., 2003). In fact, researchers claim that early age drug use causes behavioral and various other problems among adolescents (Gordon et al., 2004).

Statistics show that drug use is spreading among 10th and 11th grade students and some of the students have a severe addiction problem in the United States. Even though it is rare, some studies have shown that drug use age has declined to 7th grade (Yancy, Nader, & Burnham, 1972). Another study based on the National Survey On Drug Use and Health shows that children who are 12 years old, or even younger than 12 years old, are using drugs on a regular basis in the US (Landsheer & Harm, 1999; SAMHSA, 2007b). Moreover, other studies based on The Drug Abuse Treatment Outcome Studies showed that some of the drug addicts begin to use drugs on a regular basis, such as weekly, at the age of seven (Farabee, Joshi, & Anglin, 2001). Studies conducted in other countries showed similar results. For example, a study from Norway shows that drug use age has declined to 13 years (Gjeruldsen, Myrvang, & Opjordsmoen, 2003).

So far, studies have given various results regarding the correlation between age and both drug use and delinquency. While some researchers claimed that there is a negative correlation between age and delinquency, others claimed there is a positive correlation; on the other hand, some others could not find any correlation while others found that the correlation between two variables might differ according to age of the youths. For example, a study conducted among 2918 Dutch adolescents aged between 12 and 24 in the Netherlands showed that attitude toward delinquent behavior increases in this age range (12 – 14), it reaches peak between the ages of 15 and 17, and it decreases between the ages of 18 and 21 (Landsheer & Harm, 1999). Another study found similar results and researchers claimed that in certain ages certain crimes are more likely to be committed (Steffensmeier, Allan, Harer, & Streifel, 1989).

When the correlation between drug use and age is investigated, a huge amount of studies claim that there is a positive correlation between age and drug use. Furthermore, adolescents who begin to use drugs in their early ages are more likely continuing to use drugs later on in life.

Drug use

For example, a study based on The National Longitudinal Study of Adolescent Health showed that even though most marijuana users tried marijuana for experimental purposes, they continued to use marijuana a year later (Bree & Pickworth, 2005).

A study conducted among Hungarian arrestees who were sentenced or waiting for a court decision showed that early substance users are almost four (3.9) times more likely to become regular substance users when compared to their counterparts (Veress et al., 2004).

Another study based on the Drug Use Forecasting Survey showed that there is a positive correlation between drug use and age. Increase of age is a high risk factor for drug use (Lo, 2003).

Further, a study that was conducted among 3052 high school students in Houston showed that early onset drug use causes a continuing existing drug habit or enables one to pass to more advanced drugs in further years (Kaplan et al., 1984).

On the other hand, some researchers claim that onset drug use might show variety based on drug type. For example, a study based on the National Youth Survey showed that age is significantly correlated with marijuana use. Adolescents who use marijuana in their early ages are quitting in further years, which might be associated with first time experience, curious users. Nevertheless, the same correlation could not be found regarding to hard drugs, such as heroin, etc. because hard drugs have a stronger addictive effect on youths (Chu, 2007).

Gender differences also might affect onset drug use. For example, a study conducted among 527 adolescents, aged between 12 and 19, showed that there is a positive correlation between age and drug use for girls. In another words, the older they become the more likely they use drugs. However, same results could not acquired for male adolescents (Razzino et al., 2004).

Negative

Some studies found a negative correlation between delinquency and age. For example, a study based on the National Youth Survey showed that there is a negative correlation between age and delinquency. According to researchers, the older adolescents get, the less likely they become involved in delinquency. However, a correlation between age and drug use gives differing results. For example, even though there is a negative correlation, adolescents who begin to use drugs in the early ages are more likely use drugs at a later age (Ford, 2005).

Another study, conducted among 555 individual to measure the effect of religiosity on delinquency, showed that there is a negative correlation between delinquency and age (Evans et al., 1995).

Positive

Other studies found a positive correlation between age and delinquency. For example, a study that was conducted among Mississippi high school students showed that age is statistically significant and there is positive correlation between age and carrying firearms in the school. In other words, older students are more likely to carry firearms than younger students (May, 1999).

A study conducted among 1710 high school students showed that there is a positive correlation between age and delinquency. The older students get, the more likely they are to be involved in delinquency (Özbay, 2008).

A study based on the National Youth Survey showed that there is a positive correlation between age and seriousness of delinquency. In fact, the older the adolescent the more likely he/she is to be involved in serious delinquency (B. Johnson et al., 2001).

No correlation

However, a study that was conducted among 1153 samples aged between 17 and 28 showed that age is not statistically a significant factor for both male and female adolescents in explaining delinquency (Alarid et al., 2000).

Gender

Overall

A large number of studies found a correlation between gender and both delinquency and substance use. The measurement of differences between males and females, in terms of involvement in delinquency, is one the most investigated issues in the social sciences (Hadjar et al., 2007). According to most researchers, males are more likely to be involved in delinquent behaviors (Hadjar et al., 2007; Lee, 1998); more aggressive in and outside of the school (Jenkins, 1997; Ngai & Cheung, 2003); and begin to use drugs earlier than their female counterparts (Farabee et al., 2001).

According to researchers, the difference between male and female adolescents in delinquency can be explained from two perspectives, which are parenting practices and the patriarchal approach (Hadjar et al., 2007).

Control of families over their children is different with respect to the childrens' gender. For examples, while males are allowed to be free and travel freely, females are mostly made to join social activities under the supervision of their families (Cernkovich & Giordano, 1987). Another example can be given about the sexual life of male and female adolescents. While sexual activities are welcomed in the case of boys, it may become a problem for girls; or it is becoming less of a problem to return home in the late hours for boys while girls have strict curfews (Datesman & Scarpitti, 1975). Therefore attitudes towards boys and girls differ in the family and it is not wrong to say that girls are much more likely to live under the control of their parents than their boy counterparts (Booth et al., 2008; Hadjar et al., 2007).

Recent studies showed that males and females gave different responses to the social control elements, which might be because of the different upbringing, and the control mechanism of families on both genders. This, also, shows the role differences of both genders as given by society. Previous researches showed there is a negative correlation between attachment and delinquency; in fact, girls have more attachment than males. Furthermore, girls have greater attachment to their family and are less involved in delinquent behavior than boys (Booth et al., 2008; Hirschi, 1969; Paternoster et al., 1982). Nevertheless, excessive control over the female children might cause different problems. For example, a study that was conducted among 1103 adolescent showed that, as a result of excessive control over female children, females are almost two times (female: 53, male: 24) more likely to run away from their homes (Datesman & Scarpitti, 1975).

On the other hand, the socialization of females differs from that of males. Society allows different roles to females, such as an expectation of good behavior, while males are raised more in a freer environment. Females are treated more gently in the family, while males are expected to be stronger and dominant. As a result of these cultural expectations, males receive more severe punishment from their families. Another reason might be that females are less likely to have delinquent friends when compared to males. Studies show that having delinquent peers or friends is a high risk factor for delinquency (Paternoster et al., 1982).

However, control over female adolescents might vary according to country and culture. For example, a study that was conducted in different countries, including East and West Berlin, showed that parents have almost the same amount of control over female and male adolescents while female adolescents have greater control in Toronto. On the other hand, statistics show that female adolescents are more likely to be controlled by their parents when compared to their male counterparts (Hadjar et al., 2007).

Another study that was conducted among 703, 14 year old Swedish children showed that both male and female children are monitored similarly by their parents; however, female children feel more controlled by their parent than their male counterparts (Stattin & Kerr, 2000). Furthermore, study results showed that female children have more secrets from their

parents compared to their male counterparts, who are in a better relationship with their parents than the females (Stattin & Kerr, 2000). According to researchers, overall, there are not many differences between the two genders. However, when it comes to involvement in delinquency, research results showed that male adolescents are more likely to drink alcohol, commit property crimes and get involve in fights, when compared to the female adolescents (Stattin & Kerr, 2000).

Moreover, study results showed that supervision has greater effect on boys than girls among adolescents in preventing from both delinquency and alcohol use (Griffin et al., 2000). However, some analyses have provided different results. For example, controlling if the children have done their homework decreases aggressive behavior among girls while it has not had the same effect in the case of boys. Furthermore, in the physical absence of a guardian, girls smoked cigarettes more frequently than boys (Griffin et al., 2000).

Male-Female Comparison

So far, both self-report and uniform crime report studies overwhelmingly showed that males are more likely to be involved in delinquent behavior and begin to use drugs earlier than their female counterparts (Hagan et al., 1979). For example, a study conducted among Ankara high school students showed that male students are more likely to commit crime than females and there is statistically a significant difference between male and female students in terms of committing crime (Ozbay & Ozcan, 2008).

According to statistics that were published by the Turkish National Police, almost 97 percent of drug users are male, while only 3 percent of drug users are female in Turkey (KOM, 2002).

Furthermore, a study based on the Drug Use Forecasting dataset showed that being male is a higher risk factor for opiate and cocaine use (Lo, 2003).

Finally, a study that was conducted among 4287 faculty members in five Spanish Universities showed that males (67 percent) are more likely to and more frequently consume alcohol than their female (46 percent) counterparts (Takkouche et al., 2002).

However, other studies either could not find any correlation between gender and both delinquency and drug use or found that females are more likely to be involved in delinquency than their male counterparts. In fact, even though past research asserts that men are more likely to use drugs, some studies showed that there are no more significant dissimilarities between the two genders in European countries and the U.S. (Wallace Jr. et al., 2003). For example, a study that was conducted among substance users with ages differing between 13 and 17 showed that there is no correlation between gender and substance use (Downs et al., 1997).

According to a study conducted among heroin users in Australia, 52 percent of the sampling was male while 48 percent was female, and four out of ten were 25 years old or younger (Fry & Dwyer, 2001). Another study conducted among high school students showed that almost 50 percent of 12th grade female students have experienced marijuana at least once and 3 percent of them use marijuana regularly (Wallace Jr. et al., 2003). Additionally, studies conducted among synthetic drugs and PCP users also showed that there are no significant differences between the two genders when it comes to this type of drug use (Graeven & Sharp, 1981).

Moreover, female onset drug use is decreasing and female drug use prevalence is increasing. According to a study conducted in Australia, among youth between 14-19 years of age, female users are significantly more prevalent than male users (C. Turner et al., 2003). On the other hand, studies showed that women are more likely affected from drug use problems. Research shows that mortality can be much higher among pregnant women and their children when compared to men (Wallace Jr. et al., 2003).

A study that was conducted in New England among 1366 Patriot High School students showed that gender is a significant predictor of serious delinquency; in fact, female students are involved significantly higher levels of delinquency (Booth et al., 2008).

Social control perspective

According to the researchers, social control elements such as involvement and attachment are important factors in developing intervening programs because of their explanatory and preventive power for both academic success and delinquency (Huebner & Betts, 2002).

The explanatory power of social control theory differs with respect to gender. According to some researchers, It has more explanatory power over female delinquency than male delinquency, which might be caused from escalating differences between the two genders or role differences which are expected by both society and families (Krohn & Massey, 1980b).

For example, a study that was conducted among students who are attending between 7th and 12th grades showed that the attachment element can explain 22 percent of delinquency among females, while it is only 8 percent for males (Huebner & Betts, 2002). Furthermore, as a result of this study, researchers concluded that attachment is a stronger predictor for female delinquency while involvement is a stronger predictor for male delinquency (Huebner & Betts, 2002).

A study that was conducted among 3065 students showed that commitment has the greatest effect in predicting female delinquency while parental attachment has the greatest effect in predicting male delinquency (Krohn & Massey, 1980b). In fact, the study posits that social control theory elements might show various effects on both male and female adolescents (Krohn & Massey, 1980b).

A study that was conducted among Mississippi high school students to measure the correlation between carrying a gun and attachment to society and social institutions such as family and school showed that males are statistically significant and are more likely to carry a gun in the school (83.7 percent) compared to their female counterparts(16.3 percent) (May, 1999).

A study that was conducted among 911 high school students between the 7th and 12th grades showed that attachment to parents and peers is statistically significant and negatively

correlated with delinquent behavior for females and males; however, attachment to adults (non family members) remained statistically significantly negative related for females while it is not for males (Huebner & Betts, 2002).

A study conducted among 1153 samples aged between 17 and 28 showed that peer attachment has more explanatory power for males than females; parental attachment has more explanatory power in explaining female delinquency than male delinquency; involvement has the same amount of explanatory power for both male and female delinquents among adolescents; and females are less likely to be involved in property crimes when compared to their male counterparts. However, there are no differences between male and female adolescents in the case of violent crimes and substance use (Alarid et al., 2000).

Another study that was conducted among Turkish high school students in Ankara showed that male students are more attached to their families and delinquent peers than female students. Nevertheless, in terms of the remaining elements of social control theory such as attachment to teachers, respect toward police, commitment to school, conventional friends, family supervision, and conventional beliefs, females have more attachment than their male counterparts (Ozbay & Ozcan, 2008).

However, another study that was conducted to understand how much differing social control elements have an effect on the two genders vis-a-vis delinquency, showed that there are no differences between male and female students. In other words, social control elements have the same amount of effect on delinquency for both genders, overall. Nevertheless, attachment to teachers has a greater negative effect on having drug user friends for males, while having drug user friends has a greater negative effect on parental supervision, attachment to teachers, commitment and community involvement for females (Erickson et al., 2000).

Attachment

Attachment to family

Attachment to family and gender issue has been investigated from different perspectives. For example, Voorhis, et al. (1988) compared the effect of gender and family structure over delinquency; and Hindelang (1971) and Hirschi (1969) measured the effect of eagerness of both males and females to resemble their parents in the measurement of delinquency (Hirschi, 1969). Moreover, some studies measured the effect of family structure over delinquency for both male and female adolescents (R. Johnson, 1986; Sokol-Katz et al., 1997).

Even though the comparison of the effect of both genders and family attachment over delinquency is one of the rarely investigated issues, a study that was conducted among 152 high school students showed that gender has a greater effect on delinquency than family structure (Voorhis et al., 1988).

On the other hand, most scholars investigated the effect of family structure on delinquency and the eagerness to resemble one's parents for both males and females. For example, a study based on the South Florida Youth Development Project, Longitudinal Study, showed that gender is statistically significantly related for both minor and serious delinquency among adolescents; in fact, females who are living in broken families are more likely to be involved in delinquency than their male counterparts (Sokol-Katz et al., 1997). However, female youths are more likely to follow laws and less likely to be involved in minor, serious delinquency and drug use when compared to their male counterparts (Sokol-Katz et al., 1997).

The comparison of boys and girls who are living in single parent homes showed that boys are more likely to smoke cigarettes, use alcohol, and be involved in aggressive and delinquent behavior when compared to girls (Griffin et al., 2000).

A study that was conducted among 734 high school students showed that males are more likely to be involved in delinquency when compared to female counterparts. However, in

broken families there is no significance between male and female adolescents (R. Johnson, 1986).

A study conducted among 4077 high school students showed that in case of absence of father in the family, female students are more likely to be involved in property offences (excluding theft) than their male counterparts. There is a significant correlation also between both male and female students and auto trespass; again, a significant correlation was observed between female students and vandalism, and assault in father-absent families. However, correlations were stronger for females than their male counterparts in the context of delinquency (Austin, 1978).

A study that was conducted among 1103 arrested youths before appearing in the Family Court in Newcastle and Delaware showed that even though there is a slight difference, female arrestees are more likely to come from non intact families and become runaways when compared to males. Furthermore, the effects of family status among male and female youths across race are changing according to delinquency type. For example, females from broken homes are more likely related to public policy crimes while African American males are more likely involved in person and property offences (Datesman & Scarpitti, 1975).

A study based on the 1995 National Longitudinal Survey of Adolescent Health showed that male adolescents are more likely to be involved in delinquency than their female counterparts regardless of whether they are with their father or mother (Demuth & Brown, 2004).

Another study based on samples from between the 6th and 12 grades and living in the New York rural area showed that 61 percent of males would like to resemble their father, while 36 percent of the males do not want to resemble their father. On the other hand, females are less likely to want to resemble their fathers compared to their male counterparts. In fact, according to statistics, slightly lower than 50 (48) percent of females do not want to be like their fathers (Hindelang, 1973). As a result of the study, researchers concluded that males are more attached to their parents when compared to females (Hindelang, 1973).

Furthermore, Hindelang's study found supportive results of Hirschi's (1969) findings which showed that 6 of every 10 males would like to resemble their father while 4 of every 10 do not.

However, an interesting result came from a study that was conducted among 1982 adolescents aged between 12 and 19 who are living in the North Central Standard Metropolitan Statistical Area. According to the study, males are more likely to be in harmony with their parents than their female counterparts. Females are more likely to be in a conflict with their parents than male adolescents (Cernkovich & Giordano, 1987). Furthermore, prior studies attributed a high rate of delinquency by females to family factors (Datesman & Scarpitti, 1975).

On the other hand, there is a negative correlation between relations with the mother and delinquency among females. Moreover, in the case of absence of the father, the relationship with the mother has a greater effect on delinquency among females (Austin, 1978).

In their study, Booth, et al. (2008) found that gender is one of the important factors in predicting serious delinquency and female students are more likely to be involved in serious delinquency. Although previous studies indicate that family attachment is one of the strongest predictors of serious delinquency, researchers could not find supportive results for the assumption.

Attachment to school

Researchers measured school attachment in accordance to how much students like school and their attitude toward teachers.

In his original study, Hirschi (1969) used male students in the measurement of school attachment and he found a negative correlation between attitude toward school and delinquency. According to study results, almost 70 (68) percent of students like school while slightly over of 30 (33) percent of students do not like school.

Hindelang (1971) has also found a negative correlation between attitude toward school and delinquency. In his study, while 63 percent of male students like school, 46 percent of male students do not like school; 67 percent of female students like school, while 41 percent of female students do not like school (Hindelang, 1973).

In the measurement of attitude toward teachers, researchers also found a negative correlation between how much students care about their teacher's opinion about them and delinquency. According to a study conducted by Hirschi (1969), 66 percent of male students care about what their teacher thinks of them while 36 percent of male students do not care.

During his study, Hindelang (1971) also found similar results, which showed that 70 percent of male students care about what their teachers think of them while 35 percent of male students do not; 67 percent of female students care about what their teachers think of them while 42 percent do not. Furthermore, study results showed that even though male and female students care what their teachers think of them, males are slightly more invested than their female counterparts (Hindelang, 1973).

Attachment to peers

Most studies claimed that males are more likely in association with delinquent peers and having delinquent friends increases the explanatory power of delinquency for male adolescents. For example, a study based on the Rochester Youth Development Study data showed that males are more likely to have delinquent peers than females (T. Thornberry et al., 1994).

In his study, Hindelang (1971) found that 80 percent of male students do not have friends who have never been picked up by police and 26 percent of male students have friends who have been picked up by police at least four times; for females, 73 percent of female students do not have friends who have never been picked up by police and 31 percent of female students have friends who have been picked up by police at least four times. Due to the fact that there is negative relationship between peer relations and delinquency, students who do

not have friends who have been picked up by police are less likely to be involved in delinquent behavior (Hindelang, 1973).

Commitment

As with other elements of social control theory, commitment showed dissimilarities between male and female adolescents over delinquency. So far, studies showed that commitment has a stronger explanatory power for female students than male students. Moreover, girls are more likely get higher grades than boys and less likely to be involved in delinquency than boys (R. Felson & Staff, 2006). For example, a study conducted among 527 adolescents aged between 12 and 19 showed that there is a negative correlation between drug use and both academic motivation and success for only female adolescents, not male adolescents (Razzino et al., 2004)

Another study, conducted among 309 high school students, showed that females have stronger school commitment and they are less likely to be involved in rebellious activity and delinquency than their male counterparts (Kelly & Pink, 1973).

On the other hand, some researchers measured the effect of attachment and involvement on academic achievement for both male and female students. According to their study, the attachment element can explain 10 percent of academic achievement of females while it can explain only five percent for males; the involvement element can explain 15 percent of academic achievement of females while it can explain 16 percent for males. Therefore, researchers concluded that involvement has the same effect on academic achievement for both males and females, while attachment has a greater effect on academic achievement for females (Huebner & Betts, 2002).

Involvement

Even though studies showed that involvement has a significant effect on delinquency among adolescents, measurements of involvement are varied, particularly in the case of some activities for both male and female adolescents. For example, a study that was conducted among 1693 high school students showed that both male and female adolescents who

engage in sports activities are almost 10.5 percent less likely to be involved in delinquent behavior than their non sports-oriented counterparts (Segrave & Hastad, 1984). However, engaging in sports activities has a stronger effect for future expectancies among males than females, which might cause males to have greater advantages than females when they involve themselves in sports activities, such as having the opportunity to pursue four year college degrees (Segrave & Hastad, 1984).

Furthermore, in the measurement of involvement, time spent in extracurricular activities at school, hours spent studying and hours spent doing chores were found to be statistically significant for both males and females. Nevertheless, the involvement element can explain 10 percent of delinquency for females, while it is 15 percent for males. Moreover, spending time in after-school clubs or hobbies was found to be statistically significant for males but not females; in the meantime, time working at a job is not statistically significant for both males and females (Huebner & Betts, 2002).

Religiosity

The effect of religiosity, also, varies for both male and female adolescents in the measurement of delinquency. For example, a study based on The National Longitudinal Study of Adolescent Health showed that female youths are less likely to use marijuana. Furthermore, female adolescents have greater religious involvement and are involved in activities with their mothers when compared to their male counterparts (Bree & Pickworth, 2005).

Moreover, a study based on the National Youth Survey showed that female adolescents are more likely to be religious than their male counterparts (Chu, 2007).

Education

Studies have shown that there is a negative correlation between education and drug use. Students who continue school or college and are successful at school are less likely to engage in drug use (Razzino et al., 2004). Additionally, increasing responsibility at the school decreases the drug use risk (Hathaway, 2004).

Studies carried out in Germany revealed that almost 75 percent of opiate users and more than 60 percent of cocaine users have a low education level (EMCDDA, 2007). Although studies have shown that college graduates are more likely to experience drugs than non college graduates, results cannot be interpreted as saying that college graduate students use drugs on a regular basis (Hathaway, 2003; MacDonald, 1999).

Income and Employment status

Supporting family members is one of the important parts of family control. This support includes psychological actions as well as economic support. Lack of sufficient economic power might undermine the self-confidence of children for future life which increases the strain and decreases the control of family over the children; eventually this might result in delinquency. Studies have shown that children who live in welfare families are less likely to be under risk from children who live in low income families. For example, the probability of children who grow in an economically comfortable family recommit delinquent acts is 29 percent while children who live in an economically dependent family recommit delinquent acts at the rate of 53.8 percent (Reiss, 1951).

Social attachments are key factors in order to prevent drug use. The more attachments people have the less likely they are to engage in delinquent behavior. For example, people who are happily married and have legitimate jobs are less likely to use drugs and engage in delinquent behaviors (SAMHSA, 2007a; Wright & Cullen, 2004). Full time employed and married people are more likely to resort to drug treatment programs and complete the programs (SAMHSA, 2007a).

Studies conducted in Germany showed that almost 70 percent of heroin users, more than 50 percent of cocaine users and more than 30 percent of cannabis users are either unemployed or living under poor economic conditions (EMCDDA, 2007). However, a legitimate job is not a preventive factor by itself. While the number of working hours is positively associated with delinquent behavior, the number of weeks in which the employee works is negatively associated with delinquent behavior (Wright & Cullen, 2004).

The working environment and new friendships on the job prevent individuals from engaging in delinquent behavior because legitimate jobs might protect individuals from negative peer influence. Furthermore, new jobs bring about a new learning experience that one gains from others, which is also another element that contributes toward preventing an employee from misbehaving. However, employment is not always a protective factor for legitimate job holders. The learning process mentioned in this paragraph cannot assure that a person is gaining positive behaviors from their co-workers. Studies have shown that in the case of white collar crimes offenders can be affected by their peers and they can learn misbehavior from their co-workers (Wright & Cullen, 2004).

According to recent research, family status is one of the most important factors in predicting future drug use among adolescents (Demuth & Brown, 2004; C. J. Rebellon, 2002; T. Rhodes et al., 2003; R. Turner & Barrett, 2005). Studies have shown that children who grow up in an intact family are less likely to become drug users and having both parents reduces the risk of becoming a drug addict in adolescence (Demuth & Brown, 2004; Kierkus & Baer, 2002). A 1995 National Longitudinal Survey showed that youths from a single father family are more likely to become involved in delinquent behavior than those who are living in an intact family (SAMHSA, 1995). On the other hand, living with a biological family or a family with a stepmother has a significant effect on preventing delinquent behavior among adolescents (Demuth & Brown, 2004).

However, it cannot be assumed that living in a single parent family is the cause of the drug use problem by itself (R. Turner & Barrett, 2005). Having both parents is not the only factor which affects adolescents' future drug use problems. There are also other factors, such as providing social control of children to prevent negative peer influence (Allen et al., 2003; Buchanan, 2003; Kierkus & Baer, 2002), as well as providing enough income, communication (McCambridge & Strang, 2004; Razzino et al., 2004; T. Rhodes et al., 2003), adequate attachment among family members (KOM, 2003; TBMM, 2007), and managing social stress in the family or prevention of family conflicts (NIDA, 1997; R. Turner & Barrett, 2005). If parents cannot fulfill their primary roles in the family, children are more likely to engage in

delinquent behavior or become drug users. For example, studies conducted in Norway showed that 4 in every 10 (40 percent) adolescents began to use drugs because of family conflicts, and almost 3 in every 10 (26.4 percent) have an unstable home life. Furthermore, 15 percent of the drug addicts had divorced parents and in 7.5 percent of the cases the parents were dead (Gjeruldsen et al., 2003). A study conducted among drug using adolescents showed that 4 in every 10 have a communication problem with their families (McCambridge & Strang, 2004). Another study conducted among Australian students showed that there is a significant relation between drug use and family attachment. Students who state their relation is poor with their families are exposed to three times the risk in terms of using drugs than those whose relationship with their family is good. Moreover, the likelihood of using drugs is almost nine times higher among those who have a poor relationship with family, than those whose relationship with their families is very good (Olsson et al., 2003).

On the other hand, in some cases families overestimate their supervision on their children. For example, families think that they have enough control and are aware of their children's daily activities but, in reality, they do not. Statistics showed that only 4 percent of the families estimate their children's drug habit while 96 percent of families could not estimate their children's drug behavior. It is obvious that families are overestimating the efficacy of their supervision on their children (Hermida, Villa, Seco, & Pérez, 2003).

Summary

This chapter have explained four elements of social control theory, attachment, involvement, commitment and belief, by giving examples from different studies. It has been understood that each scholar measured these four elements from different perspectives. For example, while some researchers investigate attachment to family element with family structure, others look in to family functions such as time spent with family, etc. On the other hand, other types of attachments such as attachment to peers and school also deeply investigated. Besides, roles of the family members and working mechanism of attachment to others were explained. Subsequently, other elements of social control theory such as

commitment, involvement and belief analyzed detailed based on literature reviews. For example, commitment was measured with academic success of students at the school, involvement was measured with time spending in conventional activities, belief was measured with respect to institutions.

However, besides researching classical social control elements, effect of religiosity and socio-economic status on/in both crime and substance use explained based on literature. Further, interrelations of social control theory elements reviewed.

CHAPTER 4: METHODOLOGY

Introduction

In previous chapters, the literature related to social control theory has been comprehensively reviewed and synthesized. First causes of crime and illegal substance use, secondly, various studies related to social control theory explored. In this chapter, the research methods utilised in this research discussed and the appropriate statistical methods are presented for analysis.

As identified in Chapter One, the main purpose of this study is to investigate how successfully social control theory explains illegal substance use and delinquent behaviour among Bagcilar high school students in Turkey where limited study has been conducted and people who are from different cultural background are living. For this purpose, the following research methodological issues are considered.

This chapter will present the methodology employed in the study in details. It first presents research questions and hypothesis related to them. Then sampling and data collection methods are explained. After the definition of variables, analysis methods are described.

Restatement of the Goal and Objectives

The main purpose of this study is to examine the relationship between social control elements and both delinquency and illegal substance use in Bagcilar, one of the biggest and the most crowded boroughs of Istanbul, Turkey. On the other hand, although there are a lot of studies that test social control theory in western societies, the number of studies testing social control theory in Turkey is highly limited. Therefore, this study aims to measure how much social control theory can explain delinquency and illegal substance use in Turkey.

Even though there are various criminological theories, social control theory is one of the most appropriate theories that might be applied to Turkish society because family, the institutional structure and cultural values are still overwhelmingly dominant in Turkish society. Turkey, the United States and other western European countries are representative of very different cultural, economic and social backgrounds. While in the Turkish family

traditional values are still very dominant in society, individualism and independence are more prevalent in the western societies. For example, 30 year-old adults continue to live with their parents in Turkey without garnering any particular attention or judgment for doing so; however, in the US and other western countries, adolescents who reach 18 years of age are much more likely to leave their homes and live independently. Furthermore, although there are some changes in the Turkish family structure with the advent of globalization, most families are still following the accepted traditions. Turkish children grow up in a particular disciplinary system, which is applied both at home by family members and at school by their teachers. For example, for their inappropriate behaviors children may be punished physically by their parents at home and their teachers at school with the intent of increasing supervision over the children. Meanwhile, their US and European counterparts live under less scrutiny and fear of punishment, which might affect drug use rates (Akciger, 2008).

Research Questions and Hypotheses

This study addresses two research questions and several hypotheses to understand relations between independent variables and both delinquency and illegal substance use from the social control perspective. While research questions find out overall the effect of social control theory on delinquency and substance use, the hypotheses find out the effect of each social control theory elements on both delinquency and illegal substance use among Bagcilar high school students.

According to social control theory, there is a negative correlation between social control theory and both delinquency and illegal substance use (Booth et al., 2008; Hindelang, 1973; M Junger & Polder, 1992; Landsheer & Harm, 1999; J. S. Lopez et al., 2001; T. Thornberry et al., 1991; Wiatrowski et al., 1981). People who are attached to conventional values and institutions are less likely to be involved in delinquency. Moreover, most researchers claimed that social control theory has the strongest explanatory power on both delinquency and substance use when compared to other criminological theories.

The following research questions and hypotheses are developed for this study:

RQ1: How does social control theory explain illegal substance use among Bagcilar high school students?

RQ2: How does social control theory explain delinquency among Bagcilar high school students?

Hypothesis: The following hypotheses are developed to explore the research questions. The main purpose of the hypotheses is testing the correlation between each element of social control theory and both delinquency and illegal substance use. According to social control theory, there is a negative correlation between each element of social control theory, such as attachment, involvement, commitment and belief, and both delinquency and illegal substance use. Additionally, studies that investigated religiosity also claimed that there is a negative correlation between religiosity and both delinquency and illegal substance use. In other words, the more people are attached to family, school and conventional peers the less likely they are to be involved in delinquency and illegal substance use. Moreover, people who engage in conventional activities (involvement), have future expectations/aspirations (commitment), have stronger moral codes, believe in institutions (belief) and have stronger religious belief are less likely to be involved in delinquent behavior and illegal substance use.

On the other hand, social control elements have been measured with various variables. For example, family attachment was measured with family structure, family function and supervision. However, family function is measured with family involvement and quality of communication in the family.

In the measurement of attachment to school, researchers looked into commitment to school, the relation between teachers and students, grade point average, and sports activities in school; in the measurement of attachment to peers, researchers looked into attachment to conventional and delinquent peers; in the measurement of belief, researchers analyze honesty and trust in conventional institutions. Furthermore, socio economic status (SES) variables such as age, gender, income and parents' educational status will be used as

control variables in the measurement of social control elements. Therefore, hypotheses are grouped in accordance to each element and variables measuring those elements.

Hypothesis regarding attachment to family:

H1: Family structure negatively affects delinquency and illegal substance use.

H2: Family involvement negatively affects delinquency and illegal substance use.

H3: Quality of communication in the family negatively affects delinquency and illegal substance use.

Hypothesis regarding to Supervision

H4: Rule setting negatively affects delinquency and illegal substance use.

H5: Parental monitoring negatively affects delinquency and illegal substance use.

Hypothesis regarding attachment to peers:

H6: Attachment to delinquent peers positively affects delinquency and illegal substance use.

H7: Peer involvement negatively affects delinquency and illegal substance use.

Hypothesis regarding attachment to school:

H8: School commitment negatively affects delinquency and illegal substance use.

H9: Mathematic grade point average (GPA) negatively affects delinquency and illegal substance use.

H10: Linguistic grade point average (GPA) negatively affects delinquency and illegal substance use.

H11: Attachment to teachers negatively affects delinquency and illegal substance use.

Hypothesis regarding commitment:

H12: Future expectation and aspiration negatively affects delinquency and illegal substance use.

Hypothesis regarding involvement:

H13: Out of school sports activities positively affect delinquency and illegal substance use.

H14: Time spent at work positively affects delinquency and illegal substance use.

H15: Time spent doing homework negatively affects delinquency and illegal substance use.

Hypothesis regarding belief:

H16: Honesty negatively affects delinquency and illegal substance use.

H17: Trust in conventional institutions negatively affects delinquency and illegal substance use.

H18: Religiosity negatively affects delinquency and illegal substance use.

Research design

Differing from descriptive studies, this project is designed to test social control theory on Bagcilar high school students by using cross sectional data. The cross sectional research design is mostly used for data that was collected by survey and, as opposed to longitudinal design, it represents a one-time application of the survey on the subjects (Frankfort-Nachmias & Nachmias, 1996). Unfortunately, cross sectional designs have several disadvantages when compared to longitudinal designs because cross sectional studies provide a limited chance to investigate the causal relation between dependent and independent variables. In fact, cross sectional design mostly provides the relationship between dependent and independent variables. Therefore, such types of studies using cross sectional data to investigate the causation of delinquency and substance use have methodological explanations.

Nevertheless, there are several steps followed in this study to measure the correlation between social control theory and both delinquency and illegal substance use. In the first step, variables that are going to be used in the measurement of social control theory and dependent variables were selected among over 450 variables based on the literature. After selection, 114 variables were drawn from data to be used in the study as dependent and independent variables.

Second, because there are several variables to measure both social control theory elements and dependent variables, indexes were created. For example, while 12 types of questions were asked to subjects in order to measure overall delinquency, 10 types of questions were asked to subjects to measure illegal drug use. Similarly to dependent variables, each element of social control theory was measured with several questions or statements. For example, while seven types of questions were asked to subjects in order to measure family involvement, five types of questions were asked to subjects to measure the quality of communication between students and their parents. Therefore, indexes were created for each dependent and independent variable.

Third, the frequency of both dependent and independent variables was examined. However, the measurement of dependent variables showed that dependent variables are positively skewed. Therefore, the index of each dependent variable was recoded and turned into a dichotomous (Perkins & Jones, 2004) variable to be able to run binary logistic regression analysis, which is used to predict the likelihood (George & Mallery, 2003).

Research model

According to social control theory, there is a direct correlation between attachment, involvement, commitment, belief, and both delinquency and substance use (Booth et al., 2008; Hindelang, 1973; M Junger & Polder, 1992; Landsheer & Harm, 1999; J. S. Lopez et al., 2001; T. Thornberry et al., 1991; Wiatrowski et al., 1981). Correlations between dependent variables and independent variables are measured by using binary logistic regression. In this study, there are two dependent variables (DV) and 24 independent variables.

Dependent variables, which are used in this study, are grouped basically under two different domains, which are delinquent behavior and illegal substance use. Delinquency was measured with 12 different delinquent behaviors while illegal substance use was measured with 10 different drugs.

Independent variables are grouped under four domains as social control theory assumes. Those elements are attachment, involvement, commitment and belief. However, social control elements are measured with 19 variables. For example, attachment was measured with attachment to family, school and peers, which also have subgroups to be measured. In fact, attachment to parents is investigated from both structure and functional perspective. Furthermore, while family structure was measured with the physical condition of family, such as intact or non-intact family, family function was measured with family involvement, quality of communication and supervision.

Attachment to school was measured with the relations of students with their teacher, grade point average, school commitment and sports activities in the school; attachment to peers was measured with attachment to conventional and delinquent peers; belief was measured with honesty and trust in conventional institutions and perspectives. Furthermore, even though in his original study Hirschi (1969) has not mentioned the effect of religiosity on delinquency, this study investigates the preventive effect of religiosity on both delinquency and substance use. Commitment was measured with future expectancies and aspirations; involvement was measured with spending time doing homework, working hours and involvement in out-of-school sports activities. Moreover, socio economic status (SES) variables such as age, gender, family income and parental education were used as control variables.

Based on prior researches, the following two models are created to measure the correlation between social control theory elements and both illegal substance use and delinquency. Figure 1 represents the measurement of illegal substance use from the social control theory perspective while figure 2 represents the measurement of delinquency. In both models, social control elements are measured with attachment to family, peers, school,

commitment, involvement, belief and religiosity. However, attachment to family is measured from the structural and functional perspective; in fact, family function is measured with quality of communication in the family and family involvement. Moreover, supervision is measured with rule settings and parental monitoring (Cernkovich & Giordano, 1992; Durkin et al., 2007; Jenkins, 1997; Kierkus & Baer, 2002; Marcos et al., 1986; Ozbay & Ozcan, 2006; Rebellon & Van Gundy, 2005; Wiatrowski et al., 1981).

Figure 1: Conceptual Model for Illegal Substance Use

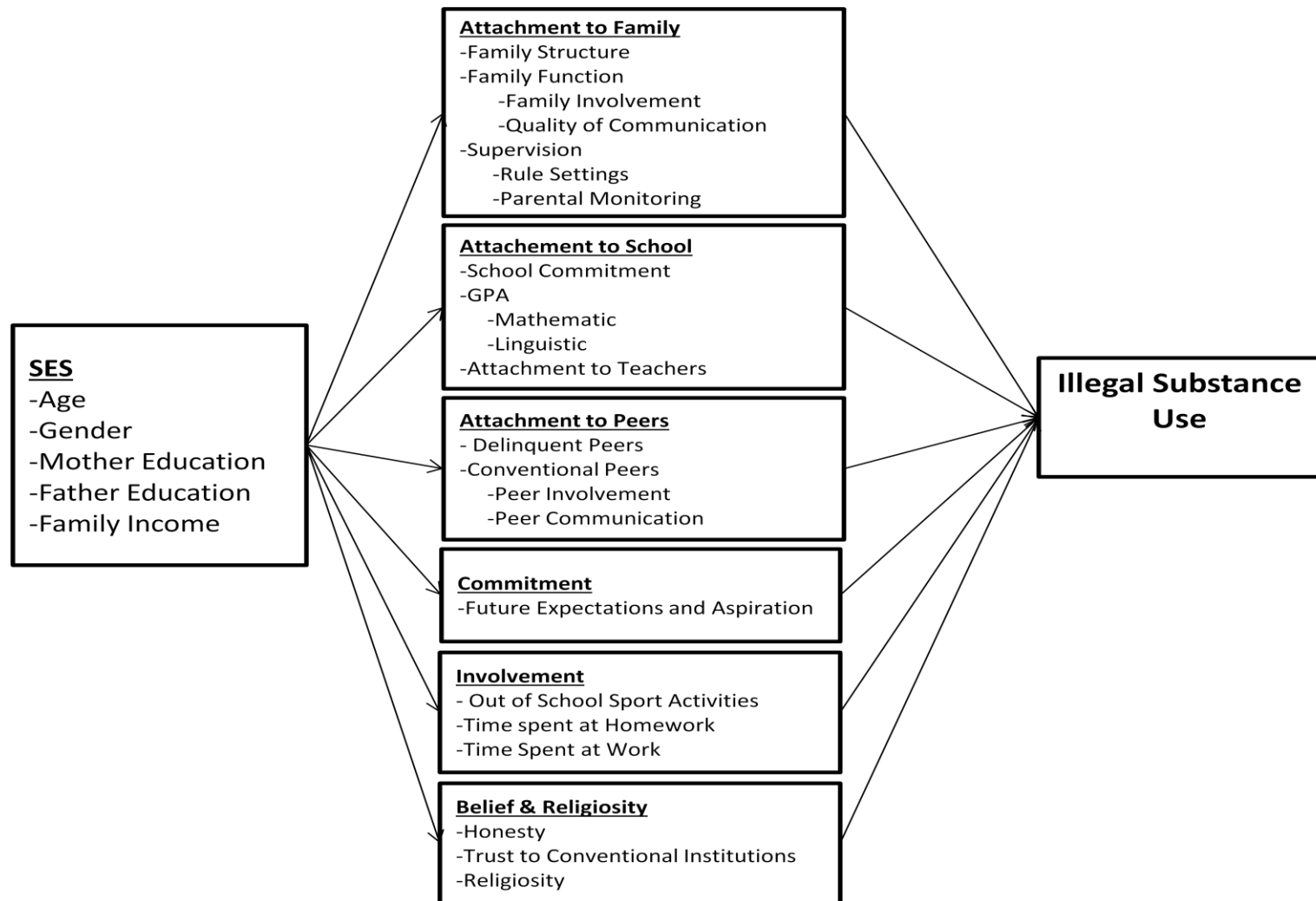
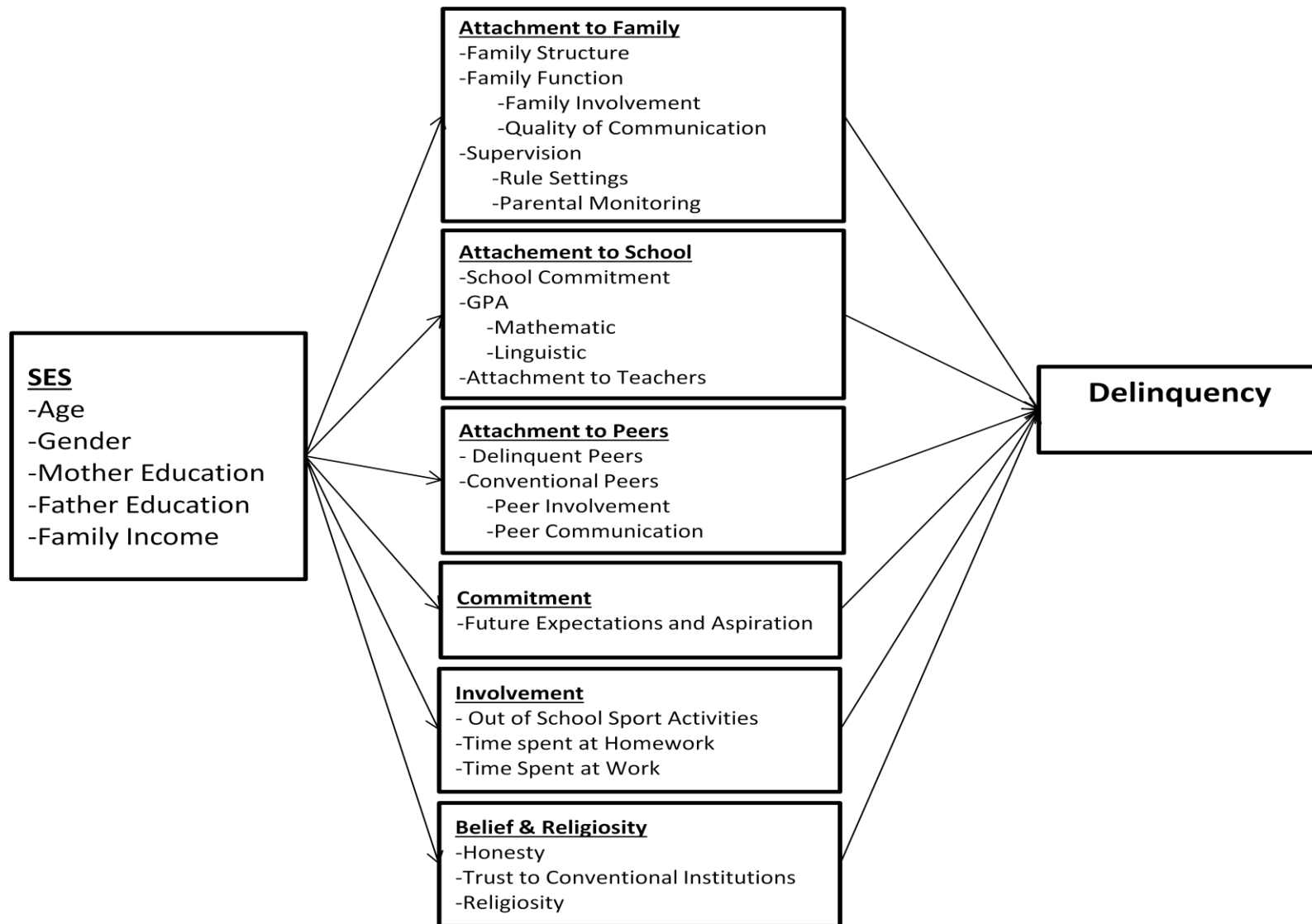


Figure 2: Conceptual Model for Delinquency



Sampling and Data Collection

Istanbul has unique situation among Turkish cities because of it has been receiving significant amount of migration. Especially after 1950 with globalization and economic growth, swift changes appeared in İstanbul's both economic status and demographic structure. Small retail traders replaced with big domestic and international firms. Rapid economic development provided new job opportunities to people who live in or migrate to Istanbul. As a result of these changes, migrating and working class people increased and diversity of İstanbul has changed a lot. During this era, population of İstanbul has increased from app. 983.000 in 1950 to 12.782.000 in 2009. Istanbul migration rate is 2,1 percent per year. Even though this portion seems to be small in percentage, in actual number is corresponding 300.000 people among app. 15.000.000 (SENTURK & DOKMECI).

The secondary data that was used in this study is one of the boroughs of Istanbul, Bagcilar, which is 22 km² with a population of approximately 719,267 ("Bagcilar Belediyesi," 2009). Bagcilar, situated in the European side of Istanbul, it is the 39 th most crowded district of Turkey. There are 5 important business centers in Bagcilar such as İSTOÇ, MASSİT, OTO CENTER, TEXTİLE CENTER and SHOE CENTER. Furthermore, national press and banking centers are located in Bagcilar. Therefore, it should be fair to say that most working class people are settled in this area in order to be close their business ("Bagcilar," ; "Bagcilar Belediyesi," 2009).

Even though it seems one of the boroughs of Istanbul, Bagcilar is bigger than 52 of 81 cities in Turkey. Monthly income of Bagcilar is 914 TL (530 euro) while average of Turkey's income is 1214 TL (704 euro) (Merkezi, 2009).

There are 40 boroughs in İstanbul and as the most crowded borough of İstanbul Bagcilar's population has grown rapidly in years (Merkezi, 2009). While the population of Bagcilar was 1.833 in 1935, its population became 3.869 in 1950 and 719.267 in 2011. Bagcilar is the fastest grown borough of İstanbul city with its 20 percent student population.

When we look at the population diversity according to age groups, it was observed that Bagcilar age group diversity resembles to Turkey general population age group diversity. According to studies, 5-19 age groups is consisting app. 30 percent of Turkish population which is almost consistent of Bagcilar age group diversity which is 33 percent between 7-22 (Gençlik, 2007; "Türkiye Demografisi,").

On the other hand, investigating crime rates of Turkey showed that, in 2006, 785.510 different public order crimes against to both person and property occurred. When statistics were investigated, app 35 percent of public order crimes (including both against to person and property crimes) occurred in İstanbul (Tuzunturk, 2009). However, unfortunately, there is not any study to investigate Bagcilar status in terms of crime situation in İstanbul. Therefore, even though socio and economic level of Bagcilar borough stated in this study, situation of crime level of Bagcilar borough could not be mentioned.

Because of above mentioned reasons such as population growth, cultural resembles of Turkey and diversity, economic importance and most importantly representing Turkey's socio-economic status Bagcilar borough is selected in collecting data among the others.

There are 76 schools and approximately 146,000 students attending those schools in Bagcilar. 22,075 of students are high school students and 5,543 of those students are in 10th grade. When high schools are divided into categories, 11 of those schools belong to the state, eight of them are private schools, one is an apprentice training school and one is a community training centre. However, this survey was applied to 2898 students between the ages of 15 and 18 at 10th grade in 18 high schools, and 85 classrooms. The surveys have been delivered to all high school students; however, 2740 of the students responded and answered the survey. While checking the dataset, 113 cases have been deleted because of lack of information. 47.3 percent of the study sample are male and 52.7 percent are female students. The age of students ranges between 15 and 18. However, most of students are 10th grade students.

This data was collected according to a protocol that was signed in 2006 between the Istanbul Metropolitan Municipality and ECAD Actavis; in fact, this study was thought to be applied through seven cities in Turkey; however, the Turkish Ministry of Education did not give permission to apply this survey nationwide. Nevertheless, the Ministry of Education recommended this survey to be applied locally. Therefore, this data was collected in Bagcilar, as a pilot study, and was financed by the Bagcilar municipality in 2007.

On the other hand, a similar study was conducted in 40 other, mostly European, countries. The ESPAD 2008 report published the drug use trends and characteristics of those 40 countries except for Turkey because Turkey as a whole is not represented in this report.

The data that was used in this study was derived from the Bagcilar municipality and the questions used in the survey were derived from the Youth in Europe Drug Prevention program. In fact, the data has enough variables to measure several criminological theories. Nevertheless, because social control theory will be measured in the study, the rest of the variables were disregarded. There are totally 451 variables in dataset; however, in this study only 26 of the variables will be used in the measurement of social control elements.

This study measures both delinquency and substance use as dependent variables. Below Table 1 and Table 2 show the variables that are used in this study and their measurement levels.

Data Protection

As mentioned above the data which has been used in this study is secondary data, which was collected by personnel who is working for Ministry of Education, mostly teachers. The surveys which were applied to and collected back from students left anonymous. Students never asked to type down any information which might reveal their identification.

After receiving the data, all adjustments to put data in equation were made in a room which had only access to writer of this thesis but nobody else. The room was always locked in case of writer of the thesis left the room and computer which was used to write the thesis never been taken out of this room.

On the other hand, the computer has username and password which is known by only the writer of this thesis. Except for writer of this thesis, nobody had access to this computer and the information which were saved in this computer.

Table 1 : Variables in Dataset and Measurement Levels

	DV/IV		Name of Variable	Measurement Level	Sub-categories
		Delinquency			
	DV		Illegal Drug Use	Nominal/Dichotomous	1-Never Used 2-Used
	DV		Delinquency	Nominal/Dichotomous	1-Never Committed 2-Committed
		Attachment to Family			
	IV	<i>Family Structure</i>	Family Structure	Nominal/Dichotomous	1-Intact Family 2-Non Intact Family
	IV	<i>Family Function</i>	Family Involvement	Interval/Ratio	
	IV		Quality of Communication	Interval/Ratio	
	IV	<i>Supervision</i>	Rule Setting	Interval/Ratio	
	IV		Parental Monitoring	Interval/Ratio	
		Attachment to Peers			
	IV	<i>Conventional Peers</i>	Peer Involvement	Interval/Ratio	
	IV	<i>Delinquent Peers</i>	Delinquent Peers	Interval/Ratio	
		Attachment to School			
	IV		School Commitment	Interval/Ratio	
	IV	<i>GPA</i>	Mathematic	Interval/Ratio	
	IV		Linguistic	Interval/Ratio	
	IV		Attachment to Teachers	Nominal/Dichotomous	1-Always Applies to Me 2-Never Applies to Me

Table 2: Variables in Dataset and Measurement Levels

	DV/IV		Name of Variable	Measurement Level	Sub-categories
		Commitment			
	IV		Future Expectations and Aspirations	Nominal/Dichotomous	1-Working 2-Further Education
		Involvement			
	IV		Out of School Sport Activities	Interval/Ratio	
	IV		Time Spend at Homework	Ordinal	1-I don't do homework 2-Less than 1/2 Hour 3-1/2 Hours 4-1 Hours 5-2 Hours 6-3 Hours 7-4 Hours 8-More than 4 Hours
	IV		Time Spend at Work	Nominal/Dichotomous	1-I don't work 2-I work
		Belief			
	IV		Honesty	Interval/Ratio	
	IV		Trust To Conventional Institutions	Interval/Ratio	
	IV		Religiosity	Interval/Ratio	
		SES			
	IV		Age	Nominal/Dichotomous	1-1991 or before 2-1992 or after
	IV		Gender	Nominal/Dichotomous	1-Male 2-Female
	IV		Father Education	Nominal/Dichotomous	1-Up to High School 2-Some University
	IV		Mother Education	Nominal/Dichotomous	1-Up to High School 2-Some University
	IV		Family Income	Interval/Ratio	

List of variables

Definition of variables

Dependent variables

So far researchers measured delinquency and illegal substance use under different categories. For example, some researchers categorized delinquency under two different groups, such as serious delinquency and minor delinquency (Rankin & Kern, 1994; Sokol-Katz et al., 1997), while others included risky behavior and other types of delinquencies (Booth et al., 2008). However, in the literature, there is not only one type of group which is used by all researchers. For example, while some researchers put fighting under the category of serious delinquency (McNulty & Bellair, 2003), others described it as delinquency (Booth et al., 2008). Therefore, factoring or indexing delinquency types is a differed process from one study to another. On the other hand, the same pattern has been seen in the measurement of substance use. In this study, in total, 22 types of delinquency and illegal substance use were measured as dependent variables.

Substance use

Researchers measured substance use in different categories. In the measurement of substance use, most researchers separated smoking, drinking alcohol and illegal substance use from each other. Compatible with other studies, in this study, only illegal substance use will be used to measure substance use as a dependent variable.

Illegal substances have been measured with the following 10 items: “How often have you used Ritalin without prescription in your life?”, “How often have you used marijuana in your life?”, “How often have you used amphetamine in your life?”, “How often have you used LSD in your life?”, “How often have you used ecstasy in your life?”, “How often have you used cocaine in your life?”, “How often have you used Relevin in your life?”, “How often have you used magic mushroom in your life?”, “How often have you used inhalants in your life?”, “How often have you used steroids in your life?” (Bjarnason, Thorlindsson, Sigfusdottir, & Welch, 2005; Björn Hibell et al., 2004; Kristjansson, Sigfusdottir, Allegrante, & Helgason,

2008; T Thorlindsson & Bernburg, 2006; T Thorlindsson, Bjarnason, & Sigfusdottir, 2007; T Thorlindsson & Vilhjalmsen, 1991; Th. Thorlindsson, 1989). Response items were measured in seven ordinal levels and coded as 1 (never), 2 (1-2 times), 3 (3-5 times), 4 (6-9 times), 5 (10- 19 times), 6 (20- 39 times), 7 (40 times or more).

In order to put illegal substance use as one element, an index has been created (Cronbach alpha=.970). Nevertheless, when the frequency of index variable was analyzed, the index remained positively distributed. In such cases, one of the methods to treat the variables is recoding them as dichotomous variables. Especially, when Cronbach's alpha for 10 items is high (.970), it can be interpreted that items are showing 97 percent internal consistency. Therefore, the index variable was recoded and turned into the dichotomous variable based on a technique which has been used in previous studies (Lli, Fang, & Stanton, 1999; Perkins & Jones, 2004). As a result of the process, students who used illegal drugs at least one or more times are coded as two while students who have never used any type of illegal drugs are coded as one. Higher scores showed higher illegal substance use involvement.

Delinquency

Delinquency was measured with various variables in the literature, so far. However, in the data that will be used in this study, delinquency was measured with 12 items in three different delinquency groups, which are fighting (violence), theft and sexual harassment. On the other hand, because delinquency is measured overall in this study, the following questions were indexed. For example, fighting (violence) was measured with the following questions: "How often have you punched somebody in the last 12 months?", "How often have you knocked somebody over in the last 12 months?", "How often have you kicked somebody in the last 12 months?", "How often have you hit or slapped somebody in the last 12 months?", "How often have you held somebody by the neck in the last 12 months?" and "How often have you threatened somebody with violence in the last 12 months?". Theft was measured with the following questions: "How often have you stolen something worth less than three movie tickets in the last 12 months?", "How often have you stolen something worth more than three movie tickets in the last 12 months?", "How often have you used

physical violence in order to rob or steal in the last 12 months?”, “How often have you broken into a building or a car to steal in the last 12 months?” (Heimer & Matsueda, 1994; Sigfusdottir, Farkas, & Silver, 2004; Sigfusdottir, Thorlindsson, & Bjarnason, 2007; Warr, 1993).

Sexual crime was measured with the following two questions: “How often have you forced somebody to have sexual relations with you in the last 12 months?” and “How often have you forced somebody to have sexual intercourse with you in the last 12 months?”. These questions were, also, developed and used by the Icelandic Centre for Social Research and Analysis (ICSRA) at the Reykjavik University School of Health (Björn Hibell et al., 2004).

Response items were measured in seven ordinal levels and coded as 1 (never), 2 (once), 3 (2-5 times), 4 (6-9 times), 5 (10-13 times), 6 (14-17 times), 7 (18 times or more). However, as said earlier, in order to put delinquency as one element, an index has been created (Cronbach alpha=.930). Nevertheless, when frequencies were analyzed, the index remained positively distributed. In such cases, one of the methods to treat variables is recoding them as a dichotomous variable. Especially, when Cronbach's alpha for 12 items is high (.930) it can be interpreted that items are showing 93 percent internal consistency. Therefore, the index variable was turned in to the dichotomous variable based on a technique which has been used in previous studies (Lli et al., 1999; Perkins & Jones, 2004). As a result of the process, students who committed at least one or more crimes the measured delinquent behavior are coded as two while students who have never committed any type of delinquent behavior are coded as one. Higher scores showed higher delinquent involvement.

Independent variables

Attachment to family

Family factors are among the most important factors for predicting adolescents' future delinquency (Kierkus & Baer, 2002). Family structure such as marital status and intactness of family; family function such as parental supervision, communication among the family members, stress in the family, and attitudes of family members to drugs might be the

elements that make up the family factors (Allen et al., 2003; Demuth & Brown, 2004; Hathaway, 2004; Hermida et al., 2003; Kierkus & Baer, 2002; NIDA, 1997; T. Rhodes et al., 2003; Riehmman, Hser, & Zeller, 2000; Wright & Cullen, 2004). However, in this study, family structure and family function are used to measure the effect of family as a social control element on delinquency.

Family structure

Family intactness is a significant factor in the prediction of drug use among adolescents and adults. For example, married persons are less likely to use drugs; in fact, married persons are more likely to get involved in and continue to pursue drug treatment programs while single persons are less likely to enroll in treatment programs and tend to fail to complete the programs (SAMHSA, 2007a; UNODC, 1998; Wright & Cullen, 2004).

According to a study conducted among Turkish ecstasy users, the prevalence of ecstasy use among those who live alone is significantly higher than among those who live with their families. Furthermore, children who live in an intact family environment are less likely to use ecstasy than those who live in non-intact families (Corapcioglu & Ogel, 2004)

Family structure was measured with the following question: “Which of the following persons live in your home?”. Response items were measured in ten ordinal levels and coded as 1 (both parents), 2 (mother but not father), 3 (father but not mother), 4 (mother and step-father), 5 (father and step-mother), 6 (I live on my own), 7 (I live with my relatives), 8 (I live with my grandparents), 9 (I live in pansion), 10 (I have different living arrangements). However, when frequencies were investigated, positive distribution was observed. While 90 percent of students were living in intact families, 4.2 percent of students were living with their mother, 0.2 percent of students were living with their father, 0.4 percent of students were living with their mother and step father, 0.7 percent of students were living with their father and step mother, 0.1 percent of students were living alone, 1.1 percent of students were living with their relatives, 0.5 percent of students were living with their grandparents, 0.8 percent of students were living in a hostel and 1.6 percent of students were living in other conditions. Therefore, the question was recoded as a dichotomous variable. After

recoding, 1 represented students who live in an intact family and 2 represented students who live in a non-intact family.

Family function

Family involvement

Family involvement was measured with the following seven questions: “How often do you watch TV with your family?”, “How often do you watch videos and DVDs with your family?”, “How often do you go to the movie or theatre with your family?”, “How often do you practice sports or outdoor activities with your family?”, “How often do you play computer games with your family?”, “How often do you talk to each other in your family?” and “How often do you travel with your family?” (Kristjansson, Sigfusdottir, Allegrante, et al., 2008; T Thorlindsson et al., 2007; Warr, 1993). Statements that measured theft were, also, developed by the Icelandic Centre for Social Research and Analysis (ICSRA) at the Reykjavik University School of Health and Education. Statements and were measured in four levels. Greater scores show greater family involvement.

Response items were measured in four ordinal levels and coded as 1 (almost never), 2 (seldom), 3 (often), 4 (almost always). However, in order to put family involvement as one element, item analysis (reliability test) was conducted and an index was created (Cronbach alpha=.710). Greater scores show greater family involvement.

Quality of communication

Quality of communication between students and parents was measured with the following five questions: “How easy or hard would it be to receive the following from your parents: caring and warmth?”, “How easy or hard would it be to receive the following from your parents: discussions about personal affairs?”, “How easy or hard would it be to receive the following from your parents: advice about studies?”, “How easy or hard would it be to receive the following from your parents: advice about other issues (projects) of yours?” and “How easy or hard would it be to receive the following from your parents: assistance with things?” (Kristjansson, Sigfusdottir, Allegrante, et al., 2008; Sigfusdottir et al., 2004;

Sigfusdottir et al., 2007; T Thorlindsson & Bernburg, 2006; T Thorlindsson et al., 2007; T Thorlindsson & Vilhjalmsdottir, 1991). Questions which measured quality of communication were, also, developed by the Icelandic Centre for Social Research and Analysis (ICSRA) at the Reykjavik University School of Health and Education.

Response items were measured in four ordinal levels and coded as 1 (very difficult), 2 (rather difficult), 3 (rather easy), 4 (very easy). However, in order to put quality of communication as one element, an index has been created (Cronbach alpha=.706). Greater scores show greater quality of communication.

Supervision

Hirschi and most researchers measured family supervision with the following two questions: “Does your mother or father know where you are when you are away from home?” and “Does your mother or father know who you are with when you are away from home?” (Costello & Vowell, 1999; Erickson et al., 2000; Hirschi, 1969; Liska & Reed, 1985; Matsueda, 1982; Ozbay & Ozcan, 2006; Özbay, 2008; Simons et al., 2004) .

However, other researchers looked at attitudes of parents toward their children, parental communication, how much parents participate in their children’s private and school life (Liska & Reed, 1985), how parents discipline or punish their children, how much parents are prepared to explain family rules and the reasons for these rules to their children (Simons et al., 2004).

In this study, family supervision was categorized under two domains, which are parental monitoring and rule settings.

Parental monitoring

Parental monitoring was measured with the following three statements: “My parents know where I am in the evenings”, “My parents follow what I do in my spare time and during entertainment times” and “My parents know who I am with in the evenings” (Bjarnason et al., 2005; Coleman, 1988; Hirschi, 1969; Kristjansson, Sigfusdottir, Allegrante, et al., 2008;

Sigfusdottir et al., 2004; Sigfusdottir et al., 2007; T Thorlindsson & Bernburg, 2006; T Thorlindsson et al., 2007; T Thorlindsson & Vilhjalmsen, 1991; Warr, 1993).

Parental rule setting

Parental rule settings were measured with the following three statements: “My parents set strict rules showing how to behave at home”, “My parents set strict rules showing how to behave out of my home” and “My parents set strict rules showing when I should be at home in the evenings” (Bjarnason et al., 2005; Coleman, 1988; Hirschi, 1969; Kristjansson, Sigfusdottir, Allegrante, et al., 2008; Sigfusdottir et al., 2004; Sigfusdottir et al., 2007; T Thorlindsson & Bernburg, 2006; T Thorlindsson et al., 2007; T Thorlindsson & Vilhjalmsen, 1991; Warr, 1993).

Moreover, statements which measured both rule settings and parental monitoring were, also, developed by the Icelandic Centre for Social Research and Analysis (ICSRA) at the Reykjavik University School of Health and Education.

For both domains response items were measured in four ordinal levels and coded as 1 (applies very well to me), 2 (applies rather well to me), 3 (applies rather poorly to me), 4 (applies very poorly to me). However, in order to put parental rule settings (Cronbach alpha=.730) and parental monitoring (Cronbach alpha=.725) as one element, an index has been created separately for both variables. Greater scores show a greater level of rule setting and parental monitoring.

Attachment to peers

Conventional peers

Peer involvement

Peer involvement was measured with the following seven questions: “How often do you watch TV with your friends?”, “How often do you watch videos and DVDs with your friends?”, “How often do you go to the movie or theatre with your friends?”, “How often do you practice sports or outdoor activities with your friends?”, “How often do you play

computer games with your friends?”, “How often do you talk to your friends?” and “How often do you travel with your friends?”. Questions which measured peer involvement were developed by the Icelandic Centre for Social Research and Analysis (ICSRA) at the Reykjavik University School of Health and Education.

Response items were measured in four ordinal levels and coded as 1 (almost never), 2 (seldom), 3 (often), 4 (almost always). However, in order to put family involvement as one element, item analysis (reliability test) was conducted and an index was created (Cronbach alpha=.787). Greater scores show greater peer involvement.

Delinquent peers

Delinquent peers were measured via three different types of delinquency, which are thief peers, substance user peers and violent peers.

Thief peers were measured with the following three questions: “How many of your friends do you think have stolen something worth more than 3 movie tickets during the last 12 months?”, “How many of your friends do you think have broken into a building or a car in order to steal during the last 12 months?” and “How many of your friends do you think have damaged something that does not belong to them during the last 12 months?” (Heimer & Matsueda, 1994; T Thorlindsson & Bernburg, 2006).

Substance user peers were measured with the following four questions: “How many of your friends do you think smoke cigarettes?”, “How many of your friends do you think drink alcohol?”, “How many of your friends do you think became drunk at least once?” and “How many of your friends do you think smoke marijuana?” (Heimer & Matsueda, 1994; T Thorlindsson & Bernburg, 2006).

Violent peers were measured with the following questions: “How many of your friends do you think started a fight?” and “How many of your friends do you think look for trouble?” (Heimer & Matsueda, 1994; T Thorlindsson & Bernburg, 2006).

Response items were measured in five ordinal levels and coded as 1 (none), 2 (a few), 3 (some), 4 (most), 5 (almost all). In order to put delinquency as one element, an index has been created (Cronbach alpha=.900). Greater responses show greater attachment to delinquent peers.

Attachment to school

Attachment to school was measured in three different ways. So far, researchers looked at grade point average, attachment to teachers and sports activities in the school in the measurement of school attachment.

School commitment

School commitment was measured various ways by researchers. For example, some researchers looked at how much student like school (Costello & Vowell, 1999; Hirschi, 1969; M. Junger & Marshall, 1997) while others looked at school ability of the students (Costello & Vowell, 1999; Wiatrowski et al., 1981). However, most researchers looked at positive or negative attitude toward school (Wiatrowski et al., 1981).

In this study, school commitment was measured with the following eight statements: "I find the school studies pointless", "I am bored with the studies", "I am poorly prepared for classes", "I feel I don't put effort into the studies", "I find the studies too difficult", "I feel bad at school", "I want to quit school", "I want to change schools" (T Thorlindsson & Bernburg, 2006; T Thorlindsson & Vilhjalmsson, 1991).

Response items were measured in five ordinal levels and coded as 1 (applies almost always to me), 2 (applies often to me), 3 (applies sometimes to me), 4 (applies seldom to me), 5 (applies almost never to me). In order to put equation school commitment as one element, item analysis (reliability test) was conducted and an index was created (Cronbach alpha=.729). Greater scores showed greater school commitment.

GPA

According to Hirschi (1969), school grade is not supposed to measure delinquency; however, it might be used to measure some elements of social control theory; for example, attachment to school (Hirschi, 1969).

On the other hand, it is a controversial issue if academic performance or grade point average (GPA) is used in the measurement of attachment to school or commitment by researchers. For example, while Hirschi (1969) used academic performance or grade point average to measure attachment to school, Cernkovich and Giordano (1992) used this variable in the measurement of commitment in their study (Maguin & Loeber, 1996). However, in this study, GPA is used in the measurement of school attachment.

So far, researchers measured academic achievement (Wiatrowski et al., 1981) and GPA (Costello & Vowell, 1999) with the following questions: “What is the average grade you usually get in your courses at school?” (Huebner & Betts, 2002), “Were you satisfied with how well you did in school last term?”, “Were your parents satisfied with how well you did in school last term?” (Andrews et al., 1991).

In this study, measurement of grade point average is provided with the following questions: “What have your grades been in mathematics this semester?”, “What have your grades been in the Turkish linguistic course this semester?” (Kristjansson, Sigfusdottir, & Allegrante, 2008; T Thorlindsson et al., 2007; T Thorlindsson & Vilhjalmsson, 1991), which are compatible with prior literature questions. Questions were, also, developed by IER and ICSRA with colleagues from the University of Iceland. Questions were measured in four levels as ordinal level data. Response items were measured in five ordinal levels and coded as 1 (1 or below), 2 (about 2), 3 (about 3), 4 (about 4), 5 (about 5). Greater scores show greater commitment.

Attachment to teachers

Attachment to teachers is used in the measurement of attachment to school and used in the context of various variables in the measurement of attachment to teachers in the literature, including communication between students and teachers and attitudes from students

toward to teachers or vice versa (Erickson et al., 2000; M. Junger & Marshall, 1997; Ozbay & Ozcan, 2006, 2008; Sorenson & Brownfield, 1995; Wiatrowski et al., 1981). However, in this study, attachment to teachers was measured as one element and measurement of the attachment to teachers is provided with the following statement: “I get on badly with teachers” (T Thorlindsson & Bernburg, 2006; T Thorlindsson & Vilhjalmsson, 1991).

Response items were measured in five ordinal levels and coded as 1 (applies almost always to me), 2 (applies often to me), 3 (applies sometimes to me), 4 (applies seldom to me), 5 (applies almost never to me). Greater score show greater attachment to teachers.

Nevertheless, when frequencies were analyzed, the variables remained negatively distributed. In such cases, one of the methods to treat variables is recoding them as a dichotomous variable. Therefore, the variable was turned into the dichotomous variable based on a technique which has been used in previous studies (Lli et al., 1999; Perkins & Jones, 2004). As a result of the process, students who get on badly with their teachers are coded as one, while students who get on with their teachers are coded as two. A greater score shows greater attachment to teachers.

Commitment

Aspiration and expectation

Commitment was measured with the following question: “What do you think you will do after graduating from this school?” Response items were measured in three ordinal levels and coded as 1 (go to university), 2 (technical high school or 2 years technical university), 3 (start working or looking for a job).

However, when frequency of the variable was investigated, it was observed that the variable is positively skewed. While 89.3 percent of students want to go to university, 4.1 percent of students want to go to technical high school or the two year technical university and 6.6 percent of students want to work. Therefore, the variable was recoded as a dichotomous variable. After recoding, 1 represented working after graduation, 2 represented further education. The greater score represents greater commitment.

Involvement

Time spent on homework

Involvement was measured under three different categories which are spending time with homework, working outside of school and out of school sports activities. Spending time on homework was measured with the following question: "How much time do you usually spend on homework every day?" (Eithsdottir, Kristjansson, Sigfusdottir, & Allegrante, 2008; Kristjansson, Sigfusdottir, & Allegrante, 2008; Kristjansson, Sigfusdottir, Allegrante, et al., 2008; T Thorlindsson & Bernburg, 2006; T Thorlindsson & Vilhjalmsen, 1991; Th. Thorlindsson, 1989). Response items were measured in eight ordinal levels and coded as 1 (I never do any homework), 2 (less than half an hour), 3 (about half an hour), 4 (about one hour), 5 (about 2 hours), 6 (about 3 hours), 7 (about 4 hours), 8 (more than 4 hours). Greater response shows greater involvement.

Out-of-school sports activities

Out-of-school sports activities were measured with the following four questions: "How often do you participate in sports and physical training in school, outside of compulsory classes?", "How often do you engage in sports (practice or compete in a sports club/team?", "How often do you exercise or practice sports, outside school and outside a club team?", "How often do you exert yourself physically so you exhaust yourself or sweat?" (Eithsdottir et al., 2008; Kristjansson, Sigfusdottir, & Allegrante, 2008; Kristjansson, Sigfusdottir, Allegrante, et al., 2008; T Thorlindsson & Bernburg, 2006; T Thorlindsson & Vilhjalmsen, 1991; Th. Thorlindsson, 1989). Response items were measured in six ordinal levels and coded as 1 (almost never), 2 (once a week), 3 (twice a week), 4 (3 times a week), 5 (4-6 times a week), 6 (almost everyday). However, in order to put out of school sport activities as one element, an index has been created (Cronbach alpha=.887). Greater scores show greater out-of-school sports activity involvement.

Working outside of school

Studies showed that there is a correlation between work status and both delinquency and substance use. For example, a study which was conducted among adolescents showed that unemployed adolescents are more likely to be involved in delinquent behavior than others (J. David Hawkins et al., 2000; Ngai & Cheung, 2003; SAMHSA, 2007b). According to the National Household Survey, 19.5 percent of drug users are unemployed, 19.2 percent are employed part-time and 10.4 percent are employed full-time (SAMHSA, 2007b).

However, another study which was conducted among New Yorkers showed that there is no direct correlation between employment status and drug use; but, there is a correlation between working hours and weeks and drug use. Employees who are working long hours are more likely to use drugs, while employees who have worked on a job over a long period of time in weeks are less likely to use drugs (Wright & Cullen, 2004).

Working outside of school was measured with the following question: “How many hours of paid work do you do each week along with school?” (Eithsdottir et al., 2008; Kristjansson, Sigfusdottir, & Allegrante, 2008; Kristjansson, Sigfusdottir, Allegrante, et al., 2008; T Thorlindsson & Bernburg, 2006; T Thorlindsson & Vilhjalmsson, 1991; Th. Thorlindsson, 1989). Response items were measured in seven ordinal levels and coded as 1 (I don’t work), 2 (1-4 hours), 3 (5-9 hours), 4 (10-14 hours), 5 (15-19 hours), 6 (20-24 hours), 7 (25 hours or more). When the frequency of working hours was analyzed, the index remained positively distributed. Therefore, the variable was recoded and turned into the dichotomous variable based on a technique which has been used in previous studies (Perkins & Jones, 2004). As a result of the process, students who do not work were coded as 2 while students who work were coded as 1. A greater score shows greater involvement.

Belief

Trust in a conventional institution

Belief to institutions was measured with the following four questions: “How much do you trust the Judicial system (courts)?”, “How much do you trust the Police?”, “How much do

you trust Parliament?” and “How much do you trust government?” (Hirschi, 1969). Questions were taken from Hirschi’s original study where he put social control theory on the stage and developed by IER and ICSRA with colleagues from the University of Iceland.

Response items were measured in four ordinal levels and coded as 1 (very much), 2 (rather much), 3 (rather little), 4 (very little). In order to put trust in a conventional institution as one element, an index has been created (Cronbach alpha=.860). Greater scores show greater attachment to belief and trust in conventional institutions.

Honesty

Honesty was measured with the following ten statements:

“One can break most rules if they don’t seem to apply”, “I follow whatever rules I want to follow”, “In fact there are very few absolute rules in life”, “It is difficult to trust anything, because everything changes”, “In fact nobody knows what is expected of him/her in life”, “One can never be certain of anything in life”, “Sometimes one needs to break rules in order to succeed”, “Following rules does not ensure success”(Dean, 1961), “In order to win in sports activities, sometimes rules should be violated” and “In order to win in sports activities, I dare to injure someone”(Coakley, 2004; Eitzen, 2009). Moreover, statements which measured honesty were developed by the Icelandic Centre for Social Research and Analysis (ICSRA) at the Reykjavik University School of Health and Education.

Response items were measured in five ordinal levels and coded as 1 (I totally agree), 2 (I fairly agree), 3 (I don’t know), 4 (I little agree), 5 (I don’t agree). In order to put honesty as one element, an index has been created (Cronbach alpha=.728). Greater scores show greater attachment.

Religiosity

Even though Hirschi (1969), in his original study, did not use religiosity as one of the elements of social control theory, in his later study with Stark (1969), he investigated the effect of religiosity on delinquency. Here, the researchers could not find a correlation

between religiosity and delinquency. However, most later studies found a negative and statistically significant correlation between two variables (Hirschi, 1969; Hirschi & Stark, 1969).

So far, religiosity has been measured with various variables by different researchers (Aliverdinia & Pridemore, 2007; Benda, 1997; Evans et al., 1995; B. Johnson et al., 2001; Simons et al., 2004; Sloane & Potvin, 1986; Wallace et al., 2007; Welch, 2005). For example, some researchers have found the correlation between religiosity and delinquency as one item, while some others investigated the correlation from different perspectives such as church attendance, religious activities and religious salience. While church attendance is looking for how much an individual goes to the church or mosque and is involved in activities such as praying; religious activities refers to how much an individual reads and listens to religious documents; and religious salience refers to how much an individual agrees with religious belief and sanctions. However, even though the variables that were collected, in this data, are not compatible to measure the variety of religiosity effects, they are compatible with respect to measuring the overall effect of religiosity over delinquency.

In this study, religious attachment was measured with the following nine statements: “My religion is important for me”(Aliverdinia & Pridemore, 2007; Simons et al., 2004; Wallace et al., 2007; Welch, 2005), “I pray to God regularly” (Benda, 1997; Simons et al., 2004; Welch, 2005), “I join mosque/ church activities regularly, such as Cuma praying or Sunday Mass”(Aliverdinia & Pridemore, 2007; Benda, 1997; Evans et al., 1995; B. Johnson et al., 2001; Simons et al., 2004; Sloane & Potvin, 1986; Wallace et al., 2007; Welch, 2005), “I regularly read my religious book” (Evans et al., 1995; Simons et al., 2004), “I pray to God when I need to something” (Benda, 1997; Simons et al., 2004; Welch, 2005), “My best friends are religious people” (Benda, 1997), “Most people I know are religious people” (Benda, 1997), “My mother or stepmother is religious” (Benda, 1997), “My father or stepfather is religious” (Benda, 1997; Bjarnason et al., 2005; Björn Hibell et al., 2004; Sigfusdottir et al., 2007).

Response items were measured in four ordinal levels and coded as 1 (Applies to me poorly), 2 (Applies to me rather poorly), 3 (Applies to rather well), 4 (Applies to me very well). Greater scores show greater attachment to religiosity. However, in order to put in the equation religiosity as one element, item analysis and a reliability test were conducted and an index was created (Cronbach alpha=.862). Greater scores show greater attachment to religiosity.

Interrelation among social control elements

In this section, correlation between variables is measured including both dependent and independent variables. According to social control theory, there is a positive correlation among social control theory elements except for attachment to delinquent peers, working hours of students and out of school sports activities. However, a negative correlation is expected between social control elements and both delinquency and illegal substance use, except for, again, attachment to delinquent peers, working hours of students and out of school sports activities. The aforementioned three elements are expected to be positively correlated with both delinquency and illegal substance use.

SES variables

Most scholars measure the level of income, education level and employment status in the prediction of drug use in adults and adolescents (Buchanan, 2003; EMCDDA, 2007; Fry & Dwyer, 2001; MacDonald, 1999; Ruggiero & Khan, 2006; SAMHSA, 2007a; Wright & Cullen, 2004). Therefore, this study measured the abovementioned factors as socio economic factors, besides age and gender.

Parental education (mother-father)

Education is also an important factor in the prediction of socio-economic factors (KOM, 2001). The National Household Survey has indicated that there is a correlation between drug use and education level. According to statistics, people who have a college and university degree are less likely to use drugs and the lesser the education, the more likely it is that people use drugs (SAMHSA, 2007b).

According to the Turkish education system, the first six years, including preschool, are equivalent to primary school. The next three years are equivalent to secondary school and the three years after these are equivalent to high school. Additionally, there are two year technical universities or four year university or college degree, which are optional and students can opt for either one.

In this study, parental education was measured with the following questions: “What is the highest level of schooling your father completed?” and “What is the highest level of schooling your mother completed?”. Response items were measured in six ordinal levels. However, when the frequencies of variables were investigated, it is observed that variables were positively skewed. While 87.7 percent of fathers and 87.1 percent of mothers graduated from at least primary school or continued their education after graduating high school, 0.4 percent of fathers and 0.3 percent of mothers quit from the two year technical university, 1.3 percent of fathers and 0.3 percent of mothers graduated from technical high schools, 1.3 percent of fathers and 0.5 percent of mothers quit from university, 5.9 percent of fathers and 2.5 percent of mothers graduated from university, and in the case of 3.4 percent of fathers and 9.3 percent of mothers, their education levels were unknown. Therefore, both variables were recoded as dichotomous variables. After recoding, 1 represented fathers and mothers who could not go to university and 2 represented fathers and mothers who graduated from university or continued university at least one year including two years in a technical program. Greater scores show greater parental education.

Family income

Level of income is another element that plays a role while predicting socio-economic factors. For example, a study conducted among Turkish ecstasy users showed that ecstasy is more prevalent among wealthy families’ children than low income families’ children (Corapcioglu & Ogel, 2004). However, according to most scholars, drug use is more prevalent among those who live in poor economic conditions (Aytaclara et al., 2003; MacDonald, 1999; Tompkins et al., 2003).

In this study family income was measured with following statement: “My parents are financially poor”, “My parents cannot afford to have a car”, “My parents hardly have enough money to pay for necessities (e.g. food, housing, phone)” and “My parents don’t have enough money to pay for the extracurricular activities that I would most like to participate in (e.g. practice musical instruments or sports)”. Statements that measured family income were, also, developed by the Icelandic Centre for Social Research and Analysis (ICSRA) at the Reykjavik University School of Health and Education.

Response items were measured in five ordinal levels and coded as 1 (almost never), 2 (seldom), 3 (sometimes), 4 (often), 5 (almost always). In order to put into the equation family income as one element, item analysis and a reliability test were conducted and an index was created (Cronbach alpha=.795). Greater scores show greater family income.

Age & Gender

Age and gender are significant predictors of future delinquency for youths (Landsheer & Harm, 1999; Odegård & Rossow, 2004; T. Rhodes et al., 2003; Wright & Cullen, 2004). People who begin to use drugs in the early ages are more likely to continue their drug habit (T. Rhodes et al., 2003). In recent years, the National Household Survey has shown the age of 12 years as indicating the start of drug use in the US (SAMHSA, 2007b), while a study that was conducted to reveal the characteristics of Turkish drug users showed that there are 11 year old cannabis users in Turkey (Akciger, 2008). Furthermore, national studies in the US have shown that ecstasy use has dramatically increased among adolescents who continue high school and college (Fendrich, Wislar, Johnson, & Hubbell, 2003). Studies conducted among crack users showed that early age crack use increases the risk of users becoming involved in the drug business (Farabee et al., 2001).

Although the data was collected among 10th grade high school students, the age of students varies between those who were born in 1989 and 1994. However, when frequency of age was examined, it was observed that 89% of students’ ages are distributed between 1991 and 1992. Therefore, age was recoded as a dichotomous variable. Students who were born in

1991 or before 1991 are recoded as one while students who were born in 1992 or after 1992 are recoded as two.

In the literature, researchers claimed that gender difference can be an important predictor of some types of drug use. For example, males who use heroin are more likely to use heroin again in the future when compared to female heroin users. However, the correlation that occurred among heroin users could not be seen among crack users. There were no significant differences between male and female crack users (Farabee et al., 2001).

According to the National Household Survey, males are significantly more likely to use drugs than females who are 12 years or older; however, among the 12-17 year old adolescents the ratio of drug use is almost the same for both males and females (SAMHSA, 2007b). Another study conducted among almost 3000 adolescents showed that there are no significant gender differences when it comes to drug use. (Landsheer & Harm, 1999). Furthermore, the UNODC report showed that while females were significantly more likely to use ecstasy between 1999 and 2003 than males, current statistics showed that there are no significant differences between the two genders in Europe (UNODC, 2005).

Data Analysis

The data will be analyzed using univariate, bivariate, and multivariate analysis in order to measure both delinquency and illegal substance use from the social control perspective. First, the most appropriate variables were selected from 450 variables based on the literature. Frequency tables and cross tabulations were calculated to analyze the data and relationships between the social control elements and both delinquency and substance use. The steps of the univariate, bivariate and multivariate analysis were used to measure social control theory elements with respect to delinquency and illegal substance use. Therefore, the analysis is divided into three phases. The first phase consists of the frequency tables that show general characteristics of social control theory elements among Bagcilar high school students. Mean and mode values are calculated in the univariate analyses. The second phase analysis, the predictor model, explores the association of each independent variable with

the dependent variable. Correlation statistics between dependent variables and independent variables was calculated in the bivariate analysis.

The multivariate analysis provides a prediction model. Because the dependent variables are dichotomous in this study, binominal logistic regression was used for multivariate analysis.

In fact, in the preparation of the analysis technique of this study, multiple regression analysis was assumed to test the correlation between dependent and independent variables by using existing data; however, during the exploration of data, inconsistencies were discovered because of the abnormal distribution of dependent variables, which is the inconsistency with multiple regression assumption for normality. Although different transformation techniques, which are square root, log, and inverse transformation, were applied to normalize the delinquency and substance use variables, their distribution did not change much and remained positively skewed which does not meet the requirement of multiple regression normal distribution. Therefore, dependent variables were recoded as dichotomous variables in order to be analyzed by using binary logistic regression which does not look for the requirement of normal distribution of variables. After recoding variables as dichotomous, delinquency, as a dependent variable, was represented with samples who do not commit any type of delinquent behavior in their lifetime and those who committed at least one of the delinquent behaviors at least once in their lifetime. Similarly to delinquency, substance use consisted of responders who had not used any type of illegal substance in their lifetime, as well as those who used at least one type of substance a minimum of one time.

On the other hand, although losing information is seen as a weakness of recoding variables as dichotomous variables, in case of highly skewed data distribution, it is one of the most used techniques in order to analyze the relation between dependent and independent variables by using binary logistic regression where normally distribution is not required (Nikbay, 2009). For example, in the exploration of the theft variable, 94.3 percent of the sample never committed any type of theft while only 5.7 percent of the sample had committed theft at least once; similarly to theft, in the measurement of illegal drug use, 90.8 percent of samples have never used any type of illegal drugs while only 9.2 percent of samples have tried at least one type of illegal drugs. Therefore, even though there is

criticism of the risk of losing information in recoding variables to dichotomous variables as mentioned before, in this case, recoding dependent variables into dichotomous variables does not cause significant information loss. This is because according to some researchers, Cronbach alpha values represent the identification level of index items which are .970 for illegal substance use and .930 for delinquency in our case, which is quite high (Lli, et al., 1999; Perkins & Jones, 2004).

Logistic regression analysis is used to estimate the relationship between dependent and independent variables. Normally, in a linear regression model, it is common to use the Ordinal Least Square (OLS) technique to estimate the regression coefficients. OLS chooses the best regression coefficients so that the estimated regression line is as close as possible to the observed data. This is done by measuring the sum of squared errors made in predicting Y given X . Once the regression coefficients are learned then Y can be predicted by using the following population regression function: $Y_i = \beta_0 + \beta_1 X_i + u_i$. In this formula, β_0 is the intercept which indicates the value of Y when X equals zero and β_1 is the slope of the regression line. In other words, β_1 is the amount of change in the dependent variable Y caused by one-unit change in the independent variable X . We can expand the population regression function if we have more than one independent variable and still interpret coefficients in the same way (Stock & Watson, 2003).

However, the interpretation of the population regression function becomes different when the data have a dichotomous (binary) dependent variable. When the dependent variable Y is binary, the population regression function corresponds to the probability that the dependent variable equals one, given X . Since the linear regression function is not bounded, but the probabilities are bounded by 0 and 1; the regression coefficients cannot be interpreted as easily as a regression function with a continuous dependent variable. On the other hand, OLS cannot be used as an estimator for the binary dependent variable because the binary variable in a linear regression model violates the regression assumptions of homoscedasticity and normality of the error term. In fact, it is not necessary to satisfy the homoscedasticity of the error term assumption to get an unbiased estimator, and normality

is not required once the sample size is reasonably large. However, when these assumptions are violated, the regression coefficients are no longer efficient, which means that there are alternative methods of estimation with smaller standard errors (Allison, 1999).

The logit model or the logistic regression is an optimal method for the regression analysis of dichotomous dependent variables. The basic idea of the logit model is to transform the probability so that it is no longer bounded. This is done by first transforming the probability to its odds to remove the upper bound and then taking the logarithm of the odd value to remove the lower bound. Following is the formula for the logit model:

$$\log\left[\frac{p_i}{1-p_i}\right] = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki}.$$

The odd value is not very useful for interpretation of coefficients, and interpretation of log-odds is harder than that. Therefore, to obtain the probability p_i we use the following simplified formula:

$$p_i = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki})}}.$$

Since the OLS estimator is no longer efficient, the Maximum Likelihood Estimation (MLE) method is used in logistics regression to estimate regression coefficients. The MLE method does this by first constructing the likelihood function, and then finding the values that maximize outcome of the likelihood function (Allison, 1999). Eight logit models are constructed for this study.

Relationships between both illegal substance use and delinquency and independent variables are analyzed separately. Results are presented in two-part tables. The omnibus test of model coefficient and the predictability of the model were presented in the first part of the table. Chi-Square, degrees of freedom and significance of model are followed by classification of variables in both the intercept only model and intercept and covariates (full) model. Finally Cox & Snell R^2 is presented in the table. R^2 value is not very similar to the R^2 value of linear OLS regression. Cox & Snell R^2 shows the improvement of the full model over the intercept only model. Cox & Snell R^2 is preferred because it is based on the likelihood ratio chi-square for testing the null hypothesis that all the coefficients are 0, which is consistent with the omnibus test of model coefficient.

In the second part of the table, regression coefficients, standard errors, significance and odd ratios are presented for each independent variable. To better see the impact of each independent variable on the dependent variables, their probabilities are calculated. These probabilities show the impact of a single variable on the dependent variable by holding other variables constant. It is possible to interpret the impact of each variable on the dependent variable in terms of the odds ratio. However, sometimes this interpretation can be misleading. For example if the probability of an event is 0.99, its odds would be 99. When probability increases to 0.995, its odds would be 199. As we can see, only a 0.005 increase in probability causes approximately double an increase in the odds which is hard to interpret. Therefore, probabilities are easier to interpret than odds. To be able to calculate probabilities for each variable, we need to know the starting probabilities and the most natural candidate for that is the mean of dependent variable. Probabilities are calculated in four steps: First mean of dependent variable is converted to the odds ratio $\left(odds = \frac{p}{1-p} \right)$.

Then the outcome of the first step is multiplied by the odd ratio of the independent variable and the result is converted back to the probability $\left(p = \frac{odds}{1+odds} \right)$. In the final step, the final probability is subtracted from the starting probability to see the change caused by the independent variable (Allison, 1999).

Most of the independent variables are either continuous or binary variables. The interpretation of model probabilities continues and binary independent variables are similar to the interpretation of slope coefficients in linear regression. However, some variables are categorical variables. Analysis and interpretation of categorical independent variables are different than those for continuous and binary dependent variables. To estimate the impact of each individual category of a categorical variable, one category is taken as a reference category by the statistical software, and other categories are interpreted in terms of the left-out reference variable. The education variable has six categories. By default, SPSS takes the last category as the reference category (which is college degree) and estimates coefficients for other categories.

Limitations

There are several limitations in this study which are mostly related to its methodology.

The data which has been used in this study is secondary data. Even though questions in the survey which were applied to students measure four elements of social control theory, there might be some limitations because the purpose of collecting the data is not specifically this study.

Unfortunately, this data is only limited to one borough of Istanbul. On the other hand, it is not possible and rational to distribute questionnaires across the entire country; therefore, the data is representing only Bagcilar borough in Istanbul. However, literature studies showed that the most crowded borough of Istanbul which is app 1 million populations, Bagcilar is almost showing similarities to Istanbul.

This research also aimed to measure delinquency and substance use; however, personnel who collected the data were governmental officials, mostly teachers. Therefore, some of the students may not reflect the real or correct answers to the questions in the survey because fear of being prosecuted for their inappropriate behaviour even though none of the students asked to type down any sign of their identification.

Summary

The main purpose of this study is to measure how much social control theory explains delinquency and illegal substance use among Bagcilar High School Students. There are two research questions and 18 hypotheses regarding to measurement of social control theory in this study.

The data which has been used in this thesis is cross-sectional and secondary data which has been collected among Bagcilar High School Students. In order to measure social control theory, 114 questions asked. After indexes were created and variables were recoded to put into equation, two dependent and 24 independent variables remained.

In measurement of correlation between social control theory and both delinquency and illegal substance use, univariate, bivariate, and multivariate analysis decided to be used.

While univariate analysis provides descriptive statistics of dependent and independent variables, bivariate analysis looks correlation between dependent variables and independent variables. Lastly, multivariate analysis provides prediction model and estimates the relationship between dependent and independent variables.

CHAPTER 5: FINDINGS (RESULTS)

Introduction

Analyses results are presented in this chapter. This chapter has three sections. Descriptive analysis results are presented in the Univariate Analysis section. Second section looks at the bivariate relationships between variables. Correlation analyses results presented in this section. The third section gives an examination of multivariate relationships between dependent and independent variables. Logistic regression model is used to conduct multivariate analyses.

Univariate Analysis

The dataset used in this study includes 2627 cases and, in total, 26 variables, two of which are dependent. The measurement levels of two dependent variables are dichotomous while two independent variables are in ordinal level, 15 independent variables are interval/ratio, and seven independent variables are at the dichotomous level of data. While the percentage of variable's modes is representative of the exact values of dichotomous and ordinal level of variables, the percentage of the interval level of variables represent the exact numbers disregarding fractions.

According to table 3, while 57.9 of students have never committed any type of crime, 90.8 of students have never used any type of illegal drugs, 90.2 percent of students are living in an intact family, 28.7 percent of students are studying approximately 1 hour, 89.9 percent of students do not work while they are continuing school, 57.1 percent of students get on well with their teachers, 66.1 percent of students are at least 15 or older, 91.1 percent of students' fathers have a high school education and 94.6 percent of students' mothers have a high school education.

When interval variables are investigated, honesty mean value is 23.7834 with a range between 10 and 50; religiosity mean value is 34.38 with a range between 11 and 44; family communication mean value is 14.9197 with a range between 5 and 20; family involvement mean value is 17.7652 with a range between 7 and 28; rule setting mean value is 6.8217

with a range between 3 and 12; parental monitoring mean value is 5.1639 with a range between 3 and 12; out of school sports activities mean value is 7.3099 with a range between 4 and 24; peer delinquency mean value is 13.3952 with a range between 9 and 45; peer involvement mean value is 19.0517 with a range between 7 and 28; peer communication mean value is 16.2469 with a range between 5 and 20; GPA mathematics mean value is 2.7319 with a range between 1 and 5, GPA linguistics mean value is 3.3716 with a range between 1 and 5; school commitment mean value is 29.1877 with a range between 8 and 40; and family income mean value is 8.5541 with a range between 4 and 20.

Table 3: Descriptive statistics

	N	Min	Max	Mean/Mode	%	Std. D.
Delinquency	2154	1.00	2.00	1.00	57.9	.49385
Illegal Drug Use	2304	1.00	2.00	1.00	90.8	.28849
Trust to Conventional Institutions	2428	4	16	8.80	16.5	3.408
Honesty	2091	10.00	50.00	23.7834	5.6	6.94238
Religiosity	2121	11	44	34.38	5.2	6.971
Future Expectations and Aspirations	2543	1.00	2.00	2.00	93.4	.24775
Family Communication	2391	5.00	20.00	14.9197	11.5	3.02905
Family Involvement	2509	7.00	28.00	17.7652	9.8	3.99125
Family Structure	2602	1.00	2.00	1.00	90.2	.29789
Rule Setting	2507	3.00	12.00	6.8217	15.6	2.36303
Parental Monitoring	2520	3.00	12.00	5.1639	16.6	2.04799
Time Spend at Homework	2588	1.00	8.00	4.00	28.7	1.64975
Time Spend at Work	2426	1.00	2.00	1.00	89.9	.30138
Out of School Sport Activities	2314	4.00	24.00	7.3099	5.7	4.82252
Peer Delinquency	2186	9.00	45.00	13.3952	5.8	5.97319
Peer Involvement	2516	7.00	28.00	19.0517	7.4	4.82090
GPA Mathematic	2193	1.00	5.00	2.7319	28.2	1.31185
GPA Linguistic	2271	1.00	5.00	3.3716	29	1.11346
School Commitment	2120	8.00	40.00	29.1877	6.7	5.60293
Attachment to Teachers	2308	1.00	2.00	2.00	57.1	.49497
Age	2608	1.00	2.00	2.00	66.1	.47332
Gender	2590	1.00	2.00	2.00	52.7	.49934
Family Income	2467	4.00	20.00	8.5541	9.8	3.81674
Father Education	2524	1.00	2.00	1.00	91.1	.28501
Mother Education	2488	1.00	2.00	1.00	94.6	.18676

Bivariate analysis

Comparison of Associations between the DVs and IVs

In this section, the association of two dependent variables, such as delinquency and illegal drug use and 24 independent variables, such as age, trust in conventional institutions, honesty, religiosity, future expectations and aspirations, family communication, family involvement, family structure, rule setting, parental monitoring, time spent doing homework, time spent at work, out-of-school sports activities, peer delinquency, peer involvement, peer communication, GPA mathematics, GPA linguistics, school commitment, attachment to teachers, age, gender, family income, father's education and mother's education are explored, and the exploration results of associations between each dependent and independent variable are represented.

Categories for independent variables are listed in the method chapter in table 1. In this study, family involvement, quality of communication, rule setting, parental monitoring, peer involvement, peer communication, peer delinquency, school commitment, GPA mathematics, GPA linguistics, out of school sports activities, honesty, trust in conventional institutions, religiosity and family income are used as interval level data; time spent doing homework is used as ordinal level data and, finally, family structure, attachment to teachers, future expectations and aspirations, time spent at work, age, gender, father's education and mother's education are used as nominal level data. The association of ordinal and nominal level data is measured by chi-square, interval level data is measured by t-test and the values are presented in the below listed tables.

Delinquency

The association between those who are involved in delinquency and those who are not when compared to trust in conventional institutions, honesty, religiosity, family communication, family involvement, rule setting, parental monitoring, time spent doing homework, time spent at work, involvement in out-of-school sports activities, peer delinquency, peer involvement, peer communication, GPA mathematics, school

commitment, attachment to teachers and gender are statistically significantly different; while future expectations and aspirations, family structure, GPA linguistics, age, family income, father's education and mother's education are not statistically significantly different (See table 4).

When the direction of correlation is observed, from the social control perspective, there is a negative correlation between delinquency and trust in conventional institutions, honesty, religiosity, commitment (aspiration and expectation), family structure, family involvement, quality of communication in the family, rule setting, parental monitoring, time spent doing homework, working outside of school, peer communication, school commitment, GPA mathematics, GPA linguistics, attachment to teacher, family income and age.

However, there is a positive correlation between delinquency and peer involvement, attachment to delinquent peers, out-of-school sports activities, gender, and father's and mother's education (See table 4).

Table 4: Bivariate Results for Delinquency

Variable	Mean/Mode	%	P	Sig	Sig
Trust to Conventional Institutions	8.80	16.5	-.127**	.000	***
Honesty	23.7834	5.6	-.209**	.000	***
Religiosity	34.38	5.2	-.066**	.005	**
Future Expectations and Aspirations	2.00	93.4	-.035	.115	
Family Communication	14.9197	11.5	-.090**	.000	***
Family Involvement	17.7652	9.8	-.046*	.037	*
Family Structure	1.00	90.2	-.029	.185	
Rule Setting	6.8217	15.6	-.093**	.000	***
Parental Monitoring	5.1639	16.6	-.233**	.000	***
Time Spend at Homework	4.00	28.7	-.221**	.000	***
Time Spend at Work	1.00	89.9	-.145**	.000	***
Out of School Sport Activities	7.3099	5.7	.202**	.000	***
Peer Delinquency	13.3952	5.8	.344**	.000	***
Peer Involvement	19.0517	7.4	.196**	.000	***
GPA Mathematic	2.7319	28.2	-.083**	.000	***
GPA Linguistic	3.3716	29	-.030	.200	
School Commitment	29.1877	6.7	-.214**	.000	***
Attachment to Teachers	2.00	57.1	-.149**	.000	***
Age	2.00	66.1	-.019	.377	
Gender	2.00	52.7	.273**	.000	***
Family Income	8.5541	9.8	.013	.566	
Father Education	1.00	91.1	-.037	.094	
Mother Education	1.00	94.6	.026	.245	

Illegal Drug Use

The association between those who use illegal drugs and those who do not when compared to trust in conventional institutions, honesty, religiosity, future expectations and aspirations, family communication, rule setting, parental monitoring, time spent doing homework, time spent at work, involvement in out-of-school sports activities, peer delinquency, peer involvement, peer communication, GPA mathematics, GPA linguistics, school commitment, attachment to teachers, age, gender and father's education are statistically significantly different (See table 5). However, family involvement, family structure, family income and mother's education are not statistically significantly different (See table 5).

When the direction of correlation is observed, from the social control perspective, there is a negative correlation between delinquency and trust in conventional institutions, honesty, religiosity, commitment (aspiration and expectation), family structure, family involvement, quality of communication in the family, rule setting, parental monitoring, time spent doing homework, working outside of school, peer communication, school commitment, GPA mathematics, GPA linguistics, attachment to teacher, family income and age.

However, there is a positive correlation between illegal drug use and peer involvement, attachment to delinquent peers, out-of-school sports activities, gender, and father's and mother's education (See table 5).

Table 5: Bivariate Results for Illegal Drug Use

Variable	Mean/Mode	%	P	Sig	Sig
Trust to Conventional Institutions	8.80	16.5	-.054 [*]	.012	*
Honesty	23.7834	5.6	-.076 ^{**}	.001	**
Religiosity	34.38	5.2	-.113 ^{**}	.000	***
Future Expectations and Aspirations	2.00	93.4	-.042 [*]	.047	*
Family Communication	14.9197	11.5	-.081 ^{**}	.000	***
Family Involvement	17.7652	9.8	-.033	.125	
Family Structure	1.00	90.2	-.041	.052	
Rule Setting	6.8217	15.6	-.055 ^{**}	.009	**
Parental Monitoring	5.1639	16.6	-.170 ^{**}	.000	***
Time Spend at Homework	4.00	28.7	-.132 ^{**}	.000	***
Time Spend at Work	1.00	89.9	-.285 ^{**}	.000	***
Out of School Sport Activities	7.3099	5.7	.107 ^{**}	.000	***
Peer Delinquency	13.3952	5.8	.342 ^{**}	.000	***
Peer Involvement	19.0517	7.4	.060 ^{**}	.004	**
GPA Mathematic	2.7319	28.2	-.082 ^{**}	.000	***
GPA Linguistic	3.3716	29	-.055 [*]	.014	*
School Commitment	29.1877	6.7	-.174 ^{**}	.000	***
Attachment to Teachers	2.00	57.1	-.117 ^{**}	.000	***
Age	2.00	66.1	-.086 ^{**}	.000	***
Gender	2.00	52.7	.138 ^{**}	.000	***
Family Income	8.5541	9.8	-.028	.195	
Father Education	1.00	91.1	.046 [*]	.031	*
Mother Education	1.00	94.6	.028	.195	

Multivariate Analysis

Since the dependent variables of this study are both dichotomous variables, binomial logistic regression will be used in multivariate analysis. Logistic regression analysis is used to estimate the relationship between dependent and independent variables. Normally, in a linear regression model, it is common to use the Ordinary Least Square (OLS) technique to estimate the regression coefficients. OLS chooses the best regression coefficients so that the estimated regression line is as close as possible to the observed data. This is done by measuring the sum of squared errors made in predicting Y given X . Once the regression coefficients are learned then Y can be predicted by using the following population regression function: $Y_i = \beta_0 + \beta_1 X_i + u_i$. In this formula, β_0 is the intercept which indicates the value of Y when X equals zero and β_1 is the slope of the regression line. In other words, β_1 is the amount of change in the dependent variable Y caused by one-unit change in the independent variable X . We can expand the population regression function if we have more than one independent variable and still interpret coefficients in the same way (Stock & Watson, 2003).

However, the interpretation of the population regression function becomes different when data have a dichotomous (binary) dependent variable. In that case, the population regression function corresponds to the probability that the dependent variable equals one, given X . Since the linear regression function is not bounded, but the probabilities are bounded by 0 and 1; regression coefficients cannot be interpreted as easily as a regression function with a continuous dependent variable. On the other hand, use of the OLS method for the binary dependent variable is problematic because the binary variable in a linear regression model violates the regression assumptions of homoscedasticity and the normality of the error term. In fact, it is not necessary to satisfy the homoscedasticity of the error term assumption to get an unbiased estimator, and normality is not required once the sample size is reasonably large. However, when these assumptions are violated, the regression coefficients are no longer efficient which means that there are alternative methods of estimation with smaller standard errors (Allison, 1999).

The logit model or the logistic regression is an optimal method for the regression analysis of dichotomous dependent variables. The basic idea of the logit model is to transform the probability so that it is no longer bounded. This is done by first transforming the probability to its odds to remove the upper bound and then taking the logarithm of the odd value to remove the lower bound. Following is the formula for the logit model:

$$\log\left[\frac{p_i}{1-p_i}\right] = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki}.$$

The odd value is not very useful for the interpretation of coefficients, and the interpretation of log-odds is harder than that. Therefore, to obtain the probability p_i we use the following simplified formula:

$$p_i = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki})}}.$$

Since the OLS estimator is no longer efficient, the Maximum Likelihood Estimation (MLE) method is used in logistics regression to estimate regression coefficients. The MLE method does this by first constructing the likelihood function, and then finding the values that maximize outcome of the likelihood function (Allison, 1999).

Multicollinearity between continues independent variables was tested and tolerance values for all variables exceeds .1. So, there was no multicollenearity problem for the analysis.

There are two groups of logistic regression models in which delinquency and illegal substance use variables were employed as dependent variables. As explained in the methodology chapter, there are four dichotomous demographic variables (age, gender, mother education and father education) in the conceptual model. In order to see how independent variables impact delinquency and illegal substance use in the study's sample, separate analyses were conducted for each values of those dichotomous dependent variables. In addition, four more models were run first by excluding all the socio-economic variables from the model and then including them in it. As a result, 18 logistic regression analyses were run. Results will be grouped and presented according to those four demographic variables.

Logistic regression results of different age groups for both delinquency and illegal substance use variables are presented in Table 8. The first analysis is conducted by including the

students who were born before 1991. Omnibus Tests of Model Coefficients are significant indicating that there is adequate fit of the data to the model. The Hosmer and Lemeshow Test is not significant, which also shows that there is adequate fit of the data to the model. The classification table also gives information about the model. It shows the predicted and the observed (actual) values of the dependent variable. The model can be accepted as adequate if a high percentage of values are correctly predicted by the model. According to the classification table, the model correctly predicted the 84.9% of non-delinquent cases, 71.1% of delinquent cases, and 78.7% of all cases.

There is not an equivalent of R square statistics in logistic regression, but there are many pseudo-R square statistics proposed by different researchers. However, pseudo-r square statistics does not show the goodness of fit, but it attempts to measure the strength of the association. The higher values usually indicate more strength. For this model, Cox & Snell R Square is 0.288 and Nagelkerke R Square is 0.385. They show that there is not a strong association between dependent and independent variables. B and Exp(B) statistics are reported in Table 6. B is the value that can be used to predict the dependent variable given the value of the independent variable. However, it is on the logit scale and it tells the amount of change in the predicted log odds of delinquency that would be predicted by a 1 unit change in the predictor variable, holding all other predictors constant. In order for easy interpretation, these log-odds are usually converted into odds ratios which are shown in the Exp(B) column.

Table 6 shows that eight variables are significantly related with delinquency. Those variables are honesty, quality of communication in the family, family structure, rule setting, parental monitoring, out-of-school sports activities, attachment to teachers and peer delinquency. The direction of the relationship is negative for honesty, family structure, attachment to teachers and parental monitoring indicating that the probability of delinquency decreases as honesty and parental monitoring increase. The quality of communication, rule setting, out-of-school sports activities and peer delinquency have a positive relationship with the delinquency indicating that the probability of delinquency increases as their values increase.

Table 6: Multivariate Analysis on Delinquency and Illegal Substance Use Based on Age

	Delinquency								Illegal Substance Use							
	Before 1991				After 1991				Before 1991				After 1991			
	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)
Trust	.019	.053	.719	1.019	-.077	.030	.009***	.926	.051	.120	.671	1.052	-.025	.059	.670	.975
Honesty	-.079	.027	.004**	.924	-.024	.015	.104	.976	.075	.075	.315	1.078	.011	.029	.702	1.011
Religiosity	.021	.026	.429	1.021	-.001	.014	.926	.999	.049	.058	.399	1.050	-.007	.024	.768	.993
Quality of communication in the family	.119	.066	.072*	1.126	-.051	.038	.183	.951	.175	.171	.308	1.191	.061	.074	.404	1.063
Family_involvement	-.001	.054	.985	.999	-.030	.028	.283	.970	.187	.121	.122	1.205	.030	.054	.581	1.030
Family_structure	-1.022	.566	.071*	.360	-.202	.303	.503	.817	-2.779	1.306	.033**	.062	-.682	.558	.221	.505
Rule setting recoded	.226	.088	.010*	1.254	.062	.043	.149	1.064	.128	.223	.568	1.136	.052	.089	.559	1.053
Parental monitoring recoded	-.260	.103	.012*	.771	-.124	.057	.030**	.883	-.586	.292	.045**	.556	-.222	.090	.013*	.801
Homework	-.171	.113	.129	.843	-.117	.069	.090*	.890	-.522	.281	.063	.593	.050	.126	.693	1.051
Out of school sport activity	.084	.037	.023*	1.088	.068	.021	.001***	1.070	-.206	.103	.045**	.814	.032	.032	.317	1.032
Out of school work	-.813	.526	.122	.443	-.329	.441	.456	.720	-2.300	1.015	.023**	.100	-1.796	.529	.001**	.166
Peer delinquency	.087	.033	.009**	1.091	.117	.021	.000***	1.124	.171	.066	.010**	1.187	.146	.029	.000**	1.157
Peer involvement	.070	.044	.113	1.072	.085	.024	.000***	1.089	-.267	.123	.030**	.766	.128	.050	.010**	1.136
GPA mathematic	-.109	.146	.453	.897	.042	.074	.574	1.042	-.632	.425	.137	.532	-.144	.157	.361	.866
GPA linguistic	.234	.177	.186	1.264	.102	.095	.281	1.108	-.133	.393	.736	.876	.065	.180	.717	1.068
School commitment	.023	.037	.530	1.023	-.034	.022	.114	.966	-.207	.101	.040**	.813	.011	.042	.787	1.011

Attachment to teachers	-.798	.420	.057*	.450	.031	.205	.880	1.031	-.488	1.164	.675	.614	-.184	.417	.659	.832
Aspirations and expectations	.305	.561	.586	1.357	.283	.422	.503	1.327	.045	1.087	.967	1.046	.976	1.110	.379	2.653
Constant	1.401	2.510	.577	4.061	1.284	1.761	.466	3.610	12.055	6.515	.064	171989 .388	-3.449	3.216	.283	.032
Cox & Snell R Square			.288			.223				.219					.134	
Nagelkerke R Square			.385			.299				.556					.339	

Note. **p< 0.01, *p< 0.05

In the second part of the analysis, only the students who were born after 1991 were selected and included in the analysis. The Omnibus Tests of Model Coefficients returned significant results and the Hosmer and Lemeshow Test returned insignificant results indicating that there is adequate fit of the data to the model. Cox & Snell R Square is 0.223 and Nagelkerke R Square is 0.299 for this model, again showing weak association. This model correctly predicted the 81.8% of non-delinquent cases, 57.8% of delinquent cases, and 71.4% of all cases. Therefore, we can say that the model's predictive capability is slightly higher for the students born before 1991. Trust in conventional institutions, parental monitoring, time spent on homework, out-of-school sports activities, peer delinquency and peer involvement variables were significant for students who were born after 1991. The direction of relationship was negative for trust in conventional institutions, time spent on homework and parental monitoring variables; however, other significant variables are positive.

The same analyses were repeated for the illegal substance use variable. In the first run, only the students who were born before 1991 were included in the model. It must be noted here that the findings of this model are not strong because of the limited number of students who used illegal substances in this group. The Omnibus Tests of Model Coefficients returned significant results, and the Hosmer and Lemeshow Test returned insignificant results indicating that there is adequate fit of the data to the model. Cox & Snell R Square is 0.219 and Nagelkerke R Square is 0.556 for this model. Nagelkerke R Square shows considerable high association in the model. The classification table shows that the model correctly predicted 99.5% of students who did not use illegal substances; however, the model correctly predicted 46.7% of illegal substance use. Therefore, because of the limited number of illegal substance users in the sample, the model can be considered as weak in predicting the probability of substance use. Family structure, parental monitoring, time spent on homework, out-of-school sports activities, out-of-school work, peer delinquency, peer involvement and school commitment variables are significantly related with the illegal substance use variable. Except for peer delinquency, which is positively related with illegal substance use, all other significant variables are negatively correlated with illegal substance use.

Similar results were obtained for the students who were born after 1991. The Omnibus Tests of Model Coefficients returned significant results, and the Hosmer and Lemeshow Test returned insignificant results indicating that there is adequate fit of the data to the model. Cox & Snell R Square is 0.134 and Nagelkerke R Square is 0.339 for this model, which show weak association. The classification table shows that the model correctly predicted 99.5% of students who did not use illegal substances; however, the model correctly predicted only 24.4% of illegal substance use, which is lower than what was predicted in the previous model. Parental monitoring, out-of-school work, peer delinquency and peer involvement variables are significantly related with substance use. Parental monitoring and out of school work variables have a negative relationship and the other variables have a positive relationship.

Gender.

Same logistic models were run for the gender variable. Results are presented in Table 7. The delinquency variable was used as the dependent variable in the first two models. Only female students were included in the first model. The Omnibus Tests of Model Coefficients returned significant results, and the Hosmer and Lemeshow Test returned insignificant results indicating that there is adequate fit of the data to the model. Cox & Snell R Square is 0.148 and Nagelkerke R Square is 0.209, which shows a weak association. The classification table shows that the model correctly predicted 93.3% of non-delinquent cases, 34.8% of delinquent cases and 75.5% of all cases. Honesty, homework, peer delinquency and peer involvement variables are significantly related with the delinquency variable and the relationship is negative for the honesty and homework variables and positive for other variables.

The same analysis was conducted for the male students. The Omnibus Tests of Model Coefficients returned significant results, and the Hosmer and Lemeshow Test returned insignificant results indicating that there is adequate fit of the data to the model. Cox & Snell R Square is 0.233 and Nagelkerke R Square is 0.314, showing weak association. The classification table shows that the model correctly predicted 66.1% of non-delinquent cases,

77.6% of delinquent cases and 72.8% of all cases. Trust in conventional institutions, honesty, family structure, rule setting, parental monitoring, out-of-school sport activities, out-of-school work, peer delinquency and GPA linguistics variables are found significant. Trust in conventional institutions, honesty, family structure, parental monitoring and out-of-school work variables are negatively related with the delinquency variable and others are positively related.

Table 7: Multivariate Analysis on Delinquency and Illegal Substance Use Based on Gender

	Delinquency								Illegal Substance Use							
	Female				Male				Female				Male			
	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)
Trust	-.048	.038	.200	.953	-.068	.036	.061*	.934	.011	.108	.917	1.011	-.018	.055	.744	.982
Honesty	-.048	.021	.021**	.953	-.041	.017	.015**	.959	-.016	.061	.799	.985	-.006	.028	.815	.994
Religiosity	-.007	.019	.715	.993	.000	.016	.978	1.000	.046	.057	.423	1.047	-.012	.023	.616	.988
Quality of communication in the family	-.023	.047	.627	.977	-.043	.046	.350	.958	.304	.164	.063*	1.356	.050	.074	.497	1.052
Family_involvement	-.031	.036	.386	.969	-.015	.038	.692	.985	.050	.100	.618	1.051	.057	.059	.330	1.059
Family_structure	.352	.409	.389	1.422	-.737	.393	.061*	.479	-.614	.945	.516	.541	-.416	.571	.466	.660
Rule setting recoded	.080	.056	.155	1.083	.113	.056	.044**	1.120	.008	.164	.959	1.008	.081	.088	.359	1.084
Parental monitoring recoded	.010	.084	.903	1.010	-.169	.066	.010**	.845	.001	.253	.998	1.001	-.235	.089	.008**	.791
Homework	-.172	.083	.038**	.842	.027	.089	.764	1.027	.052	.214	.810	1.053	.140	.134	.297	1.150
Out of school sport activity	.049	.033	.137	1.050	.051	.022	.024**	1.052	-.192	.155	.216	.825	.019	.033	.562	1.020
Out of school work	1.144	.805	.155	3.138	-.868	.418	.038**	.420	-.516	1.394	.711	.597	-1.643	.464	.000**	.193
Peer delinquency	.098	.025	.000***	1.103	.133	.026	.000***	1.142	.047	.069	.488	1.049	.135	.026	.000**	1.145
Peer involvement	.077	.029	.009***	1.080	.037	.032	.239	1.038	.198	.095	.037**	1.219	-.011	.049	.821	.989
GPA mathematic	.034	.097	.728	1.034	-.005	.093	.958	.995	-.174	.292	.551	.840	-.201	.166	.226	.818
GPA linguistic	.104	.125	.406	1.109	.231	.117	.049**	1.260	-.024	.328	.941	.976	.235	.181	.192	1.265

School commitment	-.019	.026	.467	.981	-.029	.028	.296	.971	-.032	.073	.663	.968	-.026	.042	.541	.975
Attachment to teachers	.223	.264	.399	1.249	-.364	.258	.159	.695	-.622	.729	.393	.537	-.570	.435	.190	.565
Aspirations and expectations	.560	.537	.297	1.751	.175	.450	.698	1.191	16.723	7748.996	.998	18317119.09	-.155	.707	.827	.857
Constant	-5.054	2.628	.054	.006	3.437	1.854	.064	31.086	-44.076	15497.994	.998	.000	1.069	2.680	.690	2.913
Cox & Snell R Square		.148				.233				.051				.187		
Nagelkerke R Square		.209				.314				.235				.364		

Note. **p< 0.01, *p< 0.05

Previous models were run for the illegal substance use variables. However, similarly to the age variable, these models were plagued by the low number of illegal substance users among the responders. Therefore, results should be interpreted carefully. For the female students' model, the Omnibus Tests of Model Coefficients returned insignificant results in this model showing that the model is not adequate; however, the Hosmer and Lemeshow Test returned insignificant results indicating that there is adequate fit of the data to the model. The low number of responders (only twelve students) may be a possible cause of this problem. Cox & Snell R Square is 0.051 and Nagelkerke R Square is 0.235, showing weak association in the model. In addition, the classification table shows that the model correctly predicted 100% of the non-users of illegal substances, but 0% of users of illegal substances, which is also problematic. Only peer involvement and quality of communication in the family returned significant results in this model and they are positively related with the illegal substance use.

In the male students' model, the Omnibus Tests of Model Coefficients returned significant results, and the Hosmer and Lemeshow Test returned insignificant results indicating that there is adequate fit of the data to the model. Cox & Snell R Square is 0.187 and Nagelkerke R Square is 0.364, showing weak association. The classification table shows that the model correctly predicted 98.9% of non-delinquent cases, 33.3% of delinquent cases and 91.2% of all cases. Parental monitoring, out-of-school work and peer delinquency were significantly related with the illegal substance use where peer delinquency has a positive relationship and other variables have a negative relationship.

3. Father's education

Father's education and mother's education variables measure whether the responder's parents have some kind of university degree or not. These variables could not be analyzed as the previous ones because when we divided the study sample into two groups, there were not a sufficient number of students with more educated fathers and mothers to get a meaningful result. Therefore, the first model included the students with less educated fathers, and employed the delinquency variable as the dependent variable. Results are

presented in Table 8. The Omnibus Tests of Model Coefficients returned significant results, and the Hosmer and Lemeshow Test returned insignificant results indicating that there is adequate fit of the data to the model. Cox & Snell R Square is 0.216 and Nagelkerke R Square is 0.29, showing weak association. The classification table shows that the model correctly predicted 84.7% of non-delinquent cases, 59.4% of delinquent cases and 73.8% of all cases. Trust, honesty, rule setting, parental monitoring, time spent on homework, out-of-school sports activities, peer delinquency and peer involvement are significantly related with the delinquency variable. The direction of relationship is negative for trust, honesty, parental monitoring and homework, and positive for others.

Table 8: Multivariate Analysis on Delinquency and Illegal Substance Use Based on Fathers Education

	Delinquency								Illegal Drug Use							
	Up to high school				Some college				Up to high school				Some college			
	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)
Trust	-.053	.027	.045**	.948					-.015	.051	.768	.985				
Honesty	-.039	.013	.003**	.962					-.010	.026	.690	.990				
Religiosity	-.007	.012	.556	.993					-.005	.022	.806	.995				
Quality of communication in the family	-.014	.033	.675	.986					.184	.070	.009***	1.202				
Family_involvement	-.018	.026	.478	.982					.043	.052	.402	1.044				
Family_structure	-.192	.277	.489	.825					-.659	.505	.192	.517				
Rule setting recoded	.091	.039	.021**	1.095					.084	.079	.286	1.088				
Parental monitoring recoded	-.126	.050	.012**	.881					-.257	.082	.002***	.774				
Homework	-.119	.059	.044**	.888					-.003	.106	.976	.997				
Out of school sport activity	.066	.019	.000***	1.069					-.004	.032	.904	.996				
Out of school work	-.515	.333	.122	.597					-1.722	.411	.000***	.179				
Peer delinquency	.106	.018	.000***	1.112					.117	.024	.000***	1.124				
Peer involvement	.073	.022	.001**	1.076					.060	.043	.159	1.062				
GPA mathematic	-.016	.068	.813	.984					-.235	.152	.122	.791				
GPA linguistic	.097	.088	.271	1.101					.003	.165	.986	1.003				
School commitment	-.014	.019	.477	.986					-.003	.036	.923	.997				

Attachment to teachers	-.185	.186	.320	.831		-.405	.377	.283	.667
Aspirations and expectations	.477	.340	.160	1.612		.024	.649	.971	1.024
Constant	.956	1.415	.499	2.601		-.948	2.523	.707	.388
Cox & Snell R Square		.216					.126		
Nagelkerke R Square		.29					.324		

Note. **p< 0.01, *p< 0.05

In the second model, again students with less educated fathers are included, and this time illegal substance use was used as the dependent variable. The Omnibus Tests of Model Coefficients returned significant results, and the Hosmer and Lemeshow Test returned insignificant results indicating that there is adequate fit of the data to the model. Cox & Snell R Square is 0.126 and Nagelkerke R Square is 0.324, showing weak association. The classification table shows that the model correctly predicted 99.4% of non-delinquent cases, 26.9% of delinquent cases and 94.6% of all cases. Quality of communication in the family, parental monitoring, time spent on out-of-school work and peer delinquency variables returned significant results. Parental monitoring and out-of-school work variables have a negative relationship, while others have a positive relationship, with the dependent variable.

4. Mother's education

Similarly to the father's education variable, there are two models for the mother's education variable. The first model included the students with less educated mothers, and employed the delinquency variable as the dependent variable. Results are presented in Table 9. The Omnibus Tests of Model Coefficients returned significant results, and the Hosmer and Lemeshow Test returned insignificant results indicating that there is adequate fit of the data to the model. Cox & Snell R Square is 0.219 and Nagelkerke R Square is 0.293, showing weak association. The classification table shows that the model correctly predicted 82.9% of non-delinquent cases, 57.8% of delinquent cases and 71.9% of all cases. Trust in conventional institutions, honesty, rule setting, parental monitoring, time spent on homework, out-of-school sports activities, peer delinquency and peer involvement were significantly related with the delinquency variable. The direction of relationship is negative for trust in conventional institutions, honesty, parental monitoring and homework, and positive for others.

Table 9: Multivariate Analysis on Delinquency and Illegal Substance Use Based on Mothers Education

	Delinquency								Illegal Drug Use							
	Up to high school				Some college				Up to high school				Some college			
	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)
Trust	-.057	.026	.028**	.944					-.023	.050	.649	.978				
Honesty	-.039	.013	.003***	.962					-.002	.025	.925	.998				
Religiosity	.001	.012	.960	1.001					-.011	.022	.611	.989				
Quality of communication in the family	-.017	.032	.598	.983					.116	.066	.078*	1.123				
Family_involvement	-.022	.025	.376	.978					.074	.050	.137	1.077				
Family_structure	-.286	.269	.287	.751					-.717	.475	.131	.488				
Rule setting recoded	.092	.038	.017**	1.096					.085	.076	.265	1.089				
Parental monitoring recoded	-.122	.049	.012**	.885					-.264	.081	.001***	.768				
Homework	-.123	.058	.033**	.884					.003	.103	.976	1.003				
Out of school sport activity	.058	.017	.001***	1.060					.005	.030	.858	1.005				
Out of school work	-.427	.325	.189	.652					-1.713	.409	.000***	.180				
Peer delinquency	.110	.018	.000***	1.117					.119	.023	.000***	1.126				
Peer involvement	.076	.021	.000***	1.078					.057	.042	.168	1.059				
GPA mathematic	-.010	.066	.882	.990					-.263	.147	.073*	.769				
GPA linguistic	.111	.085	.192	1.117					.046	.158	.773	1.047				
School commitment	-.020	.019	.278	.980					-.005	.035	.888	.995				

Attachment to teachers	-.126	.181	.484	.881		-.403	.364	.268	.669
Aspirations and expectations	.534	.341	.117	1.705		.003	.643	.996	1.003
Constant	.810	1.385	.559	2.249		-.159	2.461	.948	.853
Cox & Snell R Square		.219					.123		
Nagelkerke R Square		.293					.319		

Note. **p< 0.01, *p< 0.05

In the second model, again students with less educated mothers are included, and this time illegal substance use was used as the dependent variable. The Omnibus Tests of Model Coefficients returned significant results, and the Hosmer and Lemeshow Test returned insignificant results indicating that there is adequate fit of the data to the model. Cox & Snell R Square is 0.123 and Nagelkerke R Square is 0.319, showing weak association. The classification table shows that the model correctly predicted 99.5% of non-delinquent cases, 25.5% of delinquent cases and 94.6% of all cases. Quality of communication in the family, parental monitoring, out of school work, GPA mathematics and peer delinquency variables returned significant. GPA mathematics, parental monitoring and out-of-school work variables have a negative relationship, and others have a positive relationship, with the dependent variable.

After conducting multivariate analysis based on socio-economic status variables, we conducted two more logistic regression analyses by incorporating all variables, including the socio-economic variables, into the analysis. Results are given in Table 10. The dependent variable in the first analysis is the delinquency variable. The Omnibus Tests of Model Coefficients returned significant results, and the Hosmer and Lemeshow Test returned insignificant results indicating that there is adequate fit of the data to the model. Cox & Snell R Square is 0.238 and Nagelkerke R Square is 0.319, showing weak association. The classification table shows that the model correctly predicted 81.3% of non-delinquent cases, 61.8% of delinquent cases and 72.7% of all cases. Trust in conventional institutions, honesty, rule setting, parental monitoring, time spent on homework, out-of-school sports activities, peer delinquency, peer involvement, GPA linguistics and gender variables are significantly related with the dependent delinquency variable. Trust in conventional institutions, honesty, parental monitoring and time spent on homework variables have a negative relationship, and other variables have a positive relationship, with the dependent variable.

Table 10: Multivariate Analysis on Delinquency and Illegal Substance Including SES Variables

	Delinquency				Illegal Substance Use			
	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)
Trust	-,044	,027	,097	,957	-,023	,051	,654	,978
Honesty	-,037	,013	,005	,964	,016	,024	,502	1,016
Religiosity	-,005	,012	,686	,995	,013	,022	,561	1,013
Aspirations and expectations	-,509	,340	,134	,601	-,079	,664	,906	,924
Quality of communication in the family	-,028	,034	,408	,973	,112	,067	,096	1,119
Family_involvement	-,008	,025	,753	,992	,041	,049	,403	1,042
Family_structure	,165	,269	,539	1,179	,655	,475	,168	1,925
Rule setting recoded	,096	,039	,015	1,101	,031	,076	,679	1,032
Parental monitoring recoded	-,124	,051	,015	,884	-,149	,082	,069	,862
Homework	-,121	,059	,042	,886	,053	,112	,638	1,054
Out of school sport activity	,040	,018	,029	1,041	-,026	,031	,407	,975
Out of school work	,330	,342	,335	1,391	1,947	,449	,000	7,009
Peer delinquency	,108	,018	,000	1,114	,130	,023	,000	1,138
Peer involvement	,059	,022	,006	1,061	,053	,042	,202	1,055
GPA mathematic	,038	,068	,573	1,039	-,207	,144	,150	,813
GPA linguistic	,132	,086	,124	1,141	,168	,159	,289	1,183
School commitment	-,020	,019	,290	,980	-,032	,036	,377	,969
Attachment to teachers	,097	,184	,598	1,102	,467	,363	,199	1,595
Mother Education	-,337	,199	,090	,714	-,667	,397	,093	,513
Age	-,835	,194	,000	,434	-,950	,417	,023	,387
Gender	-,037	,023	,112	,963	,032	,049	,518	1,032
Family Income	-,002	,288	,996	,998	-,195	,532	,714	,823
Father education	-,274	,520	,598	,760	-,621	,732	,396	,538
Mother education	,825	1,190	,488	2,281	-7,001	2,171	,001	,001
Constant	-,044	,027	,097	,957	-,023	,051	,654	,978
Cox & Snell R Square	,238				,140			
Nagelkerke R Square	,319				,345			

Note. **p< 0.01, *p< 0.05

Illegal drug use was used as the dependent variable in the second analysis. The Omnibus Tests of Model Coefficients returned significant results, and the Hosmer and Lemeshow Test returned insignificant results indicating that there is adequate fit of the data to the model. Cox & Snell R Square is 0.140 and Nagelkerke R Square is 0.345, showing weak association. The classification table shows that the model correctly predicted 99.5% of non-illicit drug use cases, 25% of illicit drug use cases and 94.2% of all cases. Quality of communication in the family, parental monitoring, out-of-school work, peer delinquency, age and gender variables are significantly related with the dependent illegal substance use variable. Parental monitoring and out-of-school work variables have a negative relationship, and other variables have a positive relationship, with the dependent variable.

Five more models were run at the final part of the analysis section by first excluding all the socio-economic variables and then by including all of them into the analysis by order. However, only socio-economic status variables excluded from analysis results are given at this chapter. The results of other analyses are discussed in the discussion chapter and the tables of those analyses are attached to the appendix.

Table 11 shows in the first run, all the socioeconomic variables that were excluded from the delinquency analyses. The delinquency variable was taken as the dependent variable. The Omnibus Tests of Model Coefficients and the Hosmer and Lemeshow Test returned significant results indicating that there is adequate fit of the data to the model. Cox & Snell R Square is 0.218 and Nagelkerke R Square is 0.292, showing weak association. The classification table shows that the model correctly predicted 83.4% of non-delinquent cases, 59.6% of delinquent cases and 72.9% of all cases. Trust in conventional institutions, honesty, rule setting, parental monitoring, time spent on homework, out-of-school sports activities, peer delinquency and peer involvement variables are significantly related with the dependent delinquency variable. The direction of relationship was negative for trust in conventional activities, honesty, parental monitoring and time spent on homework variables and positive for other variables. The illegal substance variable was the dependent variable in the second run. The Omnibus Tests of Model Coefficients and the Hosmer and Lemeshow Test again returned significant results. Cox & Snell R Square is 0.122 and Nagelkerke R Square was 0.309, thus

again showing weak association. The classification table shows that the model correctly predicted 99.4% of non-delinquent cases, 25 % of delinquent cases and 94.3% of all cases. Quality of communication in the family, parental monitoring, out-of-school work, GPA mathematics and peer delinquency variables are significantly related with the dependent variable. Only parental monitoring and GPA mathematics variables have a negative relationship with the dependent variable in this model.

Table 11: Multivariate Analysis on Delinquency and Illegal Substance Excluding SES Variables

	Delinquency				Illegal Substance Use			
	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)
Trust	-,061	,025	,014	,940	-,016	,047	,725	,984
Honesty	-,038	,013	,003	,963	,002	,024	,922	1,002
Religiosity	,000	,012	,988	1,000	-,002	,021	,928	,998
Aspirations and expectations	-,327	,325	,315	,721	-,135	,637	,833	,874
Quality of communication in the family	-,012	,031	,697	,988	,115	,062	,066	1,122
Family_involvement	-,023	,024	,340	,977	,052	,047	,266	1,053
Family_structure	,302	,259	,244	1,353	,578	,464	,212	1,783
Rule setting recoded	,085	,037	,023	1,089	,058	,073	,426	1,060
Parental monitoring recoded	-,134	,048	,005	,874	-,226	,078	,004	,798
Homework	-,126	,056	,025	,882	-,011	,100	,909	,989
Out of school sport activity	,064	,017	,000	1,066	,010	,028	,736	1,010
Out of school work	,406	,322	,208	1,500	1,684	,397	,000	5,388
Peer delinquency	,105	,017	,000	1,110	,122	,022	,000	1,129
Peer involvement	,072	,020	,000	1,075	,053	,039	,178	1,054
GPA mathematic	,004	,064	,951	1,004	-,240	,138	,084	,787
GPA linguistic	,112	,081	,167	1,118	,109	,151	,468	1,116
School commitment	-,021	,018	,240	,979	-,011	,033	,738	,989
Attachment to teachers	,117	,176	,503	1,125	,449	,349	,198	1,567
Constant	,342	,992	,730	1,408	-6,024	1,902	,002	,002
Cox & Snell R Square	,218				,122			
Nagelkerke R Square	,292				,309			

Note. **p< 0.01, *p< 0.05

CHAPTER 6: DISCUSSION AND CONTEXTUALIZING THE FINDINGS

Introduction

The main aim of this study is to investigate how much social control theory elements explain delinquency and substance use among Bagcilar High School Students in Turkey.

As mentioned in previous chapters, one of the prominent criminological theories, social control theory, has been applied to western societies numerously; however, there are limited studies that measure the explanatory power of social control theory in Turkish society.

Western culture and Turkish cultures have very different cultural, economic, religious and social backgrounds. Family, institutions and cultural values are still very dominant in Turkish society. Family ties are still strong and extended family is one of the foundations of Turkish society. For example, it is expected of children to continue to live with parents when they grow older, or to live in the parental home as long as they are unmarried, even when that child reaches 40 years of age. The father is still the dominant figure in the family and the decisions taken by father are not supposed to be questioned.

This chapter discusses the findings of this study based on prior studies and the Turkish cultural context.

Hypothesis regarding attachment to family

Hypothesis regarding family structure

H1: Family structure negatively affects delinquency and illegal substance use.

The results depicted in Table 3 show that 90.2 percent of respondents are living within intact families, while 9.8 percent of respondents are living in non-intact families. An intact family is a modal group for both delinquency and illegal substance use.

Based on the bivariate results presented in Table 4 as an output of bivariate analysis, the p-value is 1.185, higher than the critical p-value of 0.05. Thus, the null hypothesis is accepted, which implies that family structure is not statistically significant with

delinquency, and the alternative hypothesis is rejected. Additionally, in Table 5, as an output of bivariate analysis, the p-value of 0.052 is slightly higher than the critical p-value of 0.05. Thus, the null hypothesis is accepted, which implies that family structure is not significant in illegal drug use, and the alternative hypothesis is rejected. In other words, family structure does not have an effect on students' involvement in delinquency; however, even though it is higher than 0.05, family structure might be affecting students' involvement in substance use.

In the multivariate analysis results showed in Table 11, as an output of multivariate analysis, the p-value is 0.259 for delinquency and 0.212 for illicit substance use, higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that family structure is not statistically significant with delinquency and illegal drug use, is accepted. The alternative hypothesis is rejected.

Prior studies have shown that family structure is statistically significant and there is a negative correlation between family structure and both delinquency and illegal substance use. Students who live in non-intact families are more likely to be involved in delinquency and use illegal substances (Austin, 1978; Demuth & Brown, 2004; Dornbusch et al., 1985; Griffin et al., 2000; Juby & Farrington, 2001; May, 1999; McNulty & Bellair, 2003; C. Rebellon, 2002; Reiss, 1951; Sokol-Katz et al., 1997; R. Turner & Barrett, 2005; Wells & Rankin, 1991). In the meantime, family intactness affects supervision of families over their children (Matsueda, 1982), which is one of the strongest preventing factors of both delinquency and illegal substance use according to this study. This will be discussed in the below paragraphs. On the other hand, some studies have shown that the effect of family structure might vary in the case of different types of delinquencies, and family structure has a higher explanatory power on status offences (R. Johnson, 1986; Voorhis et al., 1988).

During bivariate analysis, delinquency was not found to be statistically significant, while illegal substance use is slightly statistically significant. In the measurement of delinquency, subjects were asked whether they hit, kicked or punched anybody in a year, while they have also been asked whether they have ever used any illegal drugs such as ecstasy, heroin, marijuana, etc., for the sake of the measurement of illegal substance use.

When one looks at the criminal penalties for these crimes, it is obvious that illegal substance use carries more serious sanctions than kicking, hitting, or punching others. In fact, during school life, it is more likely to see rough play among friends in some cases, which results in fighting—and this is the case whether those students live in intact or non-intact families. However, illegal substance use is a serious issue because it requires financial support and, mostly, special places (accommodation) to be available for drug use. Therefore, students who would like to use illegal substances need additional financial support from their families, which might attract the attention of their families to the problem. Meanwhile, this situation might elude observation within non-intact families because family members are living in different homes. On the other hand, in intact families, parents can control their budget and pocket money that they give to their children. For example, while children who grow in a non-intact family can ask both parents for the money, in intact families this may not be possible. From this perspective, intact families are more likely to control their children than non-intact families.

However, this study revealed that family structure is not statistically significant in the measurement of both delinquency and illegal substance use in multivariate analysis, which is consistent with other studies that claim that family structure has little or no effect in the prevention of delinquency among children (Biron & Le Blanc, 1977; Cernkovich & Giordano, 1987; Jenkins, 1997; Voorhis et al., 1988). Nevertheless, it would be fair to say that this result is not unexpected because during univariate analysis it was observed that 90.2 percent of students in this data set are living in intact families. Therefore, there are limited variances among cases to enable a comparison between those children who live in intact or non-intact families.

Nevertheless, the results are in contradiction with the Turkish cultural context because public perception senses that traditional values are still dominant in Turkish families. For example, loyalty toward family members and extended family is more welcomed. Therefore, it might be concluded that besides methodological reasons, the relation between family and children in Turkish families may not go further than symbolic relations. According to general perception, intactness in the family should reflect intimacy and a good level of communication among the family members which is preventive factor for delinquency and illegal substance use. If intactness has no effect on

delinquency and illegal substance use, it might be interpreted as stating that family intactness does not carry out its preventive feature in the family as it is supposed to.

On the other hand, differences between bivariate and multivariate outcomes might result from other variables added to the equation during multivariate analysis. Due to the fact that there are 24 independent variables in the multivariate equation, any or all of them might affect analysis results.

In statistics based on age groups, which are presented in Table 6, the multivariate analysis output p-value is 0.071, higher than the critical p-value of 0.05 for delinquency; and the p-value of 0.033 for illicit substance use is lower than the critical p-value of 0.05 for those born before 1991 (younger group). Thus, the null hypothesis, which implies that the family structure is not significant in the case of delinquency is accepted, and the alternative hypothesis is rejected. However, for illegal substance use, the null hypothesis is rejected and the alternative hypothesis, which implies that family structure is statistically significant in the case of illegal drug use, is accepted.

On the other hand, the multivariate analysis output p-value is 0.503 for delinquency and 0.221 for illicit substance use, higher than the critical p-value of 0.05 for those born after 1991 (older group). Thus, the null hypothesis, which implies that family structure is not statistically significant in the case of delinquency and illegal substance use, is accepted, and the alternative hypothesis is rejected.

Results have shown that family structure is more important among younger students than older students in terms of involvement in delinquent behaviour and substance use. According to social control theory, family members, especially parents, are role models for their children. Social control theory assumes that the transition of moral values and ties between children and parents occur in the first five years of children's lives, and children are more likely spend their first five years with their mothers (Hirschi, 1969). From another perspective, it is very important for children to be raised in an intact family until they reach the age of 3 in terms of development of parents, child rearing involvement, and increased supervision. Therefore, it possible that the significant difference between younger and older students in the measurement of delinquency and

illegal substance use is related to the passing of conventional values of the family to the children at the most appropriate times, that is, during the early ages.

As mentioned above, illegal substance use is a more serious issue than involvement in delinquent behaviour. Therefore, younger students might be influenced by their intact families, which results in a significant negative correlation between family structure and illegal substance use among younger students.

However, while children are growing, other factors come into play, such as peer involvement in both the social and school environment. According to social control theory, attachment to peers one of the risk-increasing factors for delinquency and illegal substance use (Krohn & Massey, 1980b). Therefore, even though the relation between family structure and both delinquency and illicit substance use are not significant, peer involvement should not be ignored.

In the analysis based on gender, which is presented in Table 7, as an output of multivariate analysis, the p-value is 0.389 for female delinquency, 0.516 for female illegal substance use, 0.641 for male delinquency and 0.466 for male illegal substance use. All are higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that gender is not statistically significant in the case of delinquency and illegal substance use, is accepted, and the alternative hypothesis is rejected.

Most researches claim that there is a statistically significant and negative correlation between gender and both delinquency and illegal substance use (Hadjar et al., 2007; Lee, 1998). Control of families over their children is different with respect to the children's gender. For examples, while males are allowed to be free and travel freely, females are mostly made to join social activities under the supervision of their families (Cernkovich & Giordano, 1987).

However, the results of this study contradict most prior studies. According to results, there is no correlation between gender and both delinquency and illegal substance use, which is consistent with the studies carried out by Wallace Jr. et al. (2003), Downs et al. (1997), Fry & Dwyer (2001) and Graeven & Sharp (2003).

This result can be explained by the fact that globalization and multi-cultural life might affect perception of the families toward their children, regardless of gender. Currently, the education level of females is on the increase in Turkish families, which now expect their children to get a higher education, regardless of their gender. Not only the new cultural approach but also new legislation has brought positive discrimination to females in both the family and society in terms of social rights. Today, Turkish women are more independent than ever before with their earned economic independence. All these economic and social changes removed discrimination within the family; and there is a shift in perception of families toward their children , and this whether such children are male or female.

Hypothesis regarding family function

H2: Family involvement negatively affects delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4, as an output of bivariate analysis, the p-value is 0.046, lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that family involvement is statistically significant in the case of delinquency, is accepted. Additionally, in Table 5, as an output of bivariate analysis, the p-value is 0.125, higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that family involvement is not significant in the case of illegal drug use, is accepted, and the alternative hypothesis is rejected. In other words, family involvement affects students' involvement in delinquency but it does not affect students' involvement in illegal substance use.

In multivariate analysis results shown in Table 11, as an output of multivariate analysis, the significant p-value is 0.340 for delinquency and 0.266 for illicit substance use, higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that family involvement is not significant with delinquency and illegal drug use, is accepted, and the alternative hypothesis is rejected.

Family involvement is one of the parameters that show harmony in the family. The more there is harmony in the family, the more the family members spend time together (J. S.

Lopez et al., 2001; Reiss, 1951). Therefore, increasing intimacy in the family will decrease the possibility of involvement in delinquency and illegal substance use among children. However, this study could not support this assumption; in fact, family involvement is not statistically significant in the measurement of both delinquency and illegal substance use. In researching possible reasons for this result, it was understood that measurement of family involvement, in this study, may not reflect the quality of involvement in the family. According to social control theory, it is important to spend time in conventional activities rather than to spend time in just any kind of activities. In another words, there is a difference between spending time and spending quality time with the family. For example, in the measurement of family involvement, in this study, subjects were asked how often they (as a family) watch TV, DVDs, play computer games, etc. However, it would be controversial to decide how much these questions meet the requirements of social control theory in the measurement of family involvement in conventional activities. Therefore, this methodological limitation should be emphasized in the measurement of family involvement.

On the other hand, shared activities in the Turkish family, such as watching television, are not planned activities meant to increase intimacy among the family members. For example, in some western cultures, families arrange a dedicated time to watch movies, go to the cinema, or play computer games. However, unfortunately, there is no such cultural background among Turkish families meant to increase intimacy in the family routine—or if there is, it is a rare occurrence. Therefore, the above mentioned activities that were included in the survey occur routinely in the family as an activity, not with the intent to enhance relations between family members. Therefore, family involvement does not affect both delinquency and illegal substance use.

H3: Quality of communication in the family negatively affects delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4 and Table 5, as an output of bivariate analysis, the p-value is 0.000 for delinquency and 0.000 for illegal substance use—lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that communication in the family is statistically

significant in the case of delinquency and illegal substance use, is accepted. In other words, the communication level in the family negatively affects students' involvement in delinquency and illegal substance use.

In the multivariate analysis results shown in Table 11, as an output of multivariate analysis, significant p-value is 0.697 for delinquency and 0.066 for illicit substance use, higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that communication in the family is not statistically significant in the case of delinquency and illegal drug use, is accepted, and the alternative hypothesis is rejected.

Researchers overwhelmingly claim that there is a negative and statistically significant correlation between quality of communication and both delinquency and illegal substance use (Biron & Le Blanc, 1977; Conger, 1976; Greenberg, 1999; Griffin et al., 2000; Hartos & Power, 2000; R. Johnson, 1986; Juby & Farrington, 2001; J. S. Lopez et al., 2001; Rebellon & Van Gundy, 2005; Reiss, 1951; Turrisi et al., 2000).

While bivariate analysis was consistent with prior studies and social control theory assumptions, multivariate results did not support the assumptions made by social control theory. This can be explained by the fact that the correlation between two variables is negative and statistically significant; however, when other variables are added into the equation, the quality of communication turns non-significant.

On the other hand, in multivariate analysis, even though it is not statistically significant for illegal substance use, this study found that there is a positive correlation between communication in the family and illegal substance use, which is consistent with those studies stating that self-expression is unrelated with delinquency (Razzino et al., 2004; Veress et al., 2004). Nevertheless, it is interesting to find a positive correlation between quality of communication in the family and illegal substance use. It is the fourth most contributing element in the measurement of illegal substance use and when quality of communication in the family increases one unit, the likelihood of illegal substance use increases by 12 percent among students. Therefore, it can be assumed that this study missed the measuring of other factors that might cause a positive correlation between the two variables. For example, this study did not examine if there is any other substance

user in the family. In fact, prior studies overwhelmingly stated that parental/sibling substance use is a strong predictor for illegal substance use among children.

Secondly, communication is bidirectional; however, when one part of the communication disregards the other part, problems might occur. For example, while selfishness, disregard or refutation cause lack of communication from the mother's perspective toward the children, failing to reflect one's true feelings, such as anger or uncertainty, causes lack of communication toward the mother from the children's perspective (Hartos & Power, 2000).

In the Turkish context, unfortunately, there is always some distance between the father and the children because of the father's position in the family. As mentioned before, the father is the dominant member of the family whose decisions cannot be questioned. On the other hand, for the most part, there is distance between the male children and the mother in the family. It is rare for the male children to express their feelings to their mothers because of privacy issues, especially in the case of those who continue their schooling and have friends. Even though mothers in Turkish families are emotionally closer to their children (Durgel et al., 2009), male children are more likely open toward their siblings and peers. According to researchers, in case of children who cannot receive adequate support and assistance from their parents, eventually, their vulnerability will increase and they become more open to external factors (R. Johnson, 1986). In this perspective, the quality of communication is not the arbiter in terms of measuring delinquency and illegal substance use among Turkish families. Therefore, it is not surprising to acquire such a result from multivariate analysis.

Supervision negatively affects delinquency and substance use.

H4: Rule setting negatively affects delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4 and Table 5, as an output of bivariate analysis, the p-value is 0.000 for delinquency and 0.009 for illegal substance use—lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that rule setting such as supervision is statistically significant in the case of delinquency and illegal substance use, is accepted. In other

words, rule setting such as supervision negatively affects students' involvement in delinquency and illegal substance use.

In multivariate analysis results shown in Table 11, as an output of multivariate analysis, the significant p-value is 0.023 for delinquency, lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that rule setting is statistically significant in the case of delinquency, is accepted. However, as an output of multivariate analysis, the significant p-value is 0.066 for illicit substance use— higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that rule setting is not significant in the case of illegal drug use, is accepted, and the alternative hypothesis is rejected.

Although prior studies have claimed that parental monitoring is statistically significant and negatively correlated with both delinquency and substance use (Conger, 1976; Demuth & Brown, 2004; Griffin et al., 2000; Hirschi, 1969; Reiss, 1951; Stattin & Kerr, 2000), this study showed that rule setting is statistically significant but positively correlated with delinquency. Rule setting is the seventh most contributing element in the measurement of delinquency and when rule setting increases one unit, the likelihood of committing delinquent behaviour increases by nine percent. However, study results showed that there is not a statistically significant correlation between rule setting and illegal substance use.

Bivariate analysis results showed that the association interval level variables between rule settings and both delinquency and illegal substance use are statistically significant and negatively correlated, which is consistent with social control theory assumptions.

Social control theory assumes that supervisions is one of the most important mechanism in the family to prevent children from delinquent behaviour (Kierkus & Baer, 2002), and that there are various ways to provide social control in the family, such as rule settings. However, according to Hirschi (1969), the prevention effect of supervision is limited in some cases because most crimes occur in a very short time. This study measured rule setting with the imposition of curfews or the establishment of how to behave at home; nevertheless, families cannot be certain about how their children behave outside of the home. It is possible that children who are under a rigid disciplinary environment at home

might take advantage of being in an unobserved environment and become involved in excessive behaviours, including delinquent behaviours. However, most times, illegal substance use, if it is not experimental use, is a reiterated behaviour. If someone begins to use illegal substances, it is more likely that he/she will use the same or different types of drugs in the future, which might affect the results of this study.

As mentioned above, because there is distance between parents (especially the father) and the children in the Turkish family, children are open to influence from external factors such as siblings, peers and the school environment. Therefore, rule setting remains limited to their home; however, parents cannot control their children in other environments other than their home. As a result of this action, control of children who behave in the disciplinary system in their home, is beyond the parents' jurisdiction outside that environment.

On the other hand, positive correlation between rule setting and delinquency might be the result of a reaction to excessive protection of the families. Children who are under the strict disciplinary system might become involved in delinquency to show rebellious behaviour while he/she is not directly observed by the parents.

Correlation between rule setting and illegal substance use is not significant in this study. However, it should be accepted that measurement of illegal substance use does not discriminate between problematic illegal substance use and experimental substance use. Therefore, during interaction with peers, students might use illegal substances just for experimental purposes due to pressure from their peers, which not can be interpreted as proving that rule setting has no effect over illegal substance use. However, further analysis is needed with longitudinal data to understand whether there is any correlation between the two variables.

H5: Parental monitoring negatively affects delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4 and Table 5, as an output of bivariate analysis, the p-value is 0.000 for delinquency and 0.000 for illegal substance use—lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that parental monitoring is statistically significant in the case of delinquency and illegal substance use, is accepted. In other words, parental monitoring negatively affects students' involvement in delinquency and illegal substance use.

In multivariate analysis results shown in Table 11, as an output of multivariate analysis, the significant p-value is 0.005 for delinquency and 0.004 for illegal substance use—lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that parental monitoring is statistically significant in the case of delinquency and illegal substance use, is accepted.

Besides rule setting, another tool that can be used in the supervision of children at home is parental monitoring. Contrarily to rule setting, parental monitoring is statistically significant and negatively correlated with both delinquency and illegal substance use in this study, which is consistent with the literature and prior studies (Matsueda, 1982; Matsueda & Heimer, 1987; Ozbay & Ozcan, 2006, 2008; Reiss, 1951). Hirschi (1969) also mentioned parental monitoring as indirect supervision in his study and he found that indirect supervision has a greater effect than direct supervision.

Parental monitoring is the fifth most contributing element in the measurement of delinquency and when parental monitoring increases one unit, the likelihood of committing delinquency decreases by 13 percent. On the other hand, parental monitoring is the third most contributing element in the measurement of illegal substance use and when parental monitoring increases one unit, the likelihood of using illegal substances decreases by 21 percent.

As discussed earlier, with regard to tools of supervision, there is a difference between rule setting and parental monitoring. While rule setting is limited to the home, parental

monitoring can extend out of the home to the social environment of children, such as school, because parental monitoring requires questioning children about who they spend time with, what they do out of the home, and where they go when they leave the home.

Even though there is no precise duty distinction at home between parents, mothers are more likely to spend time with and close to their children, especially, in the early growth years (Veress et al., 2004). Consistent with the general perception, mothers establish a closer relationship with their children compared to the authoritarian father figure in Turkish families. On the other hand, it should not be dismissed that in the traditional Turkish family, even though things have begun to change in the last decade, the father spends his days outside the home working to earn money, while the mothers' main responsibility is taking care of the home and children. On one side is the father, experiencing a different environment outside of home; on the other side, the mother spends all her day operating home businesses and taking care of the children. As a result, it is a fact that Turkish mothers have more of a parental monitoring effect on their children than Turkish fathers.

However, it should be accepted that supervision cannot be a precise solution to preventing children from delinquency because most crimes in social life occur instantly. Therefore, indirect supervision, such as family attachment, has a greater effect than direct supervision (Hirschi, 1969).

Hypothesis regarding attachment to peers:

H6: Attachment to delinquent peers positively affects delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4 and Table 5, as an output of bivariate analysis, p-value is 0.000 for delinquency and 0.000 for illegal substance use—lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that attachment to delinquent peers is statistically significant in the case of delinquency and illegal substance use, is accepted. In other words, attachment to delinquent peers positively affects students' involvement in delinquency and illegal substance use.

In multivariate analysis results shown in Table 11, as an output of multivariate analysis, significant p-value is 0.000 for delinquency and 0.000 for illegal substance use, lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that attachment to delinquent peers is statistically significant and positively correlated with delinquency and illegal substance use, is accepted.

A positive and statistically significant correlation between attachment to delinquent peers and both delinquency and illegal substance use has been overwhelmingly mentioned in the literature (Alarid et al., 2000; Aliverdinia & Pridemore, 2007; Conger, 1976; Hindelang, 1973; Kaplan et al., 1984; KOM, 2009; Marcos et al., 1986; Mason & Windle, 2002; Matsueda & Heimer, 1987; McNulty & Bellair, 2003; Muncer et al., 1992; Polk et al., 1974; Razzino et al., 2004; Zhang & Messner, 1996). This study, also, found consistent results that show that there is statistically significant and positive correlation between attachment to delinquent peers and both delinquency and illegal substance use. According to research results, peer involvement is the strongest contributing element in the measurement of both delinquency and illegal substance use. When peer delinquency increases one unit, the likelihood of committing delinquent behaviour increases by 11 percent and illegal substance use increases by 13 percent.

However, even though Hirschi mentioned the importance of attachment to peers, in his earlier studies, Hirschi did not give enough credit to attachment to delinquent peers. Further studies about social control theory draw attention to the differences between attachment to peers and delinquent peers (Marcos et al., 1986). According to the first version of social control theory, attachment to peers is a risk-reducing factor with regard to involvement in delinquency; nevertheless, attachment to delinquent peers seems to contrarily be a risk-increasing factor for delinquency, which is supported with the result of this study as the strongest contributing element.

Most delinquent acts among school aged students are conducted with friends (Hirschi, 1969). From this perspective, it is assumed that the more students have delinquent friends, the more likely they are involved in delinquent behaviour. As mentioned earlier, before children go to school, their social environment is limited to their families; however, by the time they start school, children become open to a different

environment. Both parental control and supervision over the children decrease from the family perspective. Therefore, delinquent friends increase the risk of involvement in delinquent behaviour.

Socialization is the first step of the beginning of illegal substance use for individuals. Studies conducted among Turkish drug users showed that peer association is the second greatest contributing factor in starting drug use (KOM, 2009). During socialization, children become involved in delinquent behaviour to prove themselves and find a respectable place in the social environment. Studies conducted among Turkish students found similar results (AKDUMAN & BARAN). From the reverse perspective, delinquent adolescents are more peer oriented than others (Polk et al., 1974).

On the other hand, studies which was conducted among Turkish students showed that peer influence increases the alcohol consumption rate almost 10 times and having alcohol increases the risk factor for involvement in delinquent behaviour (ÖZYURT & DİNÇ, 2006).

As a result, from the social control perspective, attachment to delinquent peers increases the factor for delinquency and illegal substance use, which is also supported with the findings of this research.

H7: Peer involvement negatively affects delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4 and Table 5, as an output of bivariate analysis, p-value is 0.000 for delinquency and 0.004 for illegal substance use—lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that peer involvement is statistically significant in the case of delinquency and illegal substance use, is accepted. In other words, peer involvement positively affects students' involvement in delinquency and illegal substance use.

In multivariate analysis results shown in Table 11, as an output of multivariate analysis, significant p-value is 0.000 for delinquency, lower than the critical p-value of 0.05. However, p-value is 1.178 for illegal substance use, higher than the critical p-value of 0.05. Thus, the null hypothesis for delinquency is rejected and the alternative hypothesis,

which implies that peer involvement is statistically significant and positively correlated with delinquency, is accepted; however, the null hypothesis, which implies that peer involvement is not statistically significant in the case of illegal substance use, is accepted, and the alternative hypothesis is rejected.

According to social control theory, attachment to peers is statistically significant and negatively correlated with both delinquency and illegal substance use (Hirschi, 1969). However, prior studies found both supportive and contradicting results in testing attachment to peers. The difference in the results of studies is probably due to the methodological differences utilized in those studies. For example, social control theory measured attachment to peers by looking at how much peers are involved in conventional activities, while other types of studies measured the attachment to peers by looking at how much peers are involved in delinquent behaviours. These two approaches are also emphasized by other researchers (Hindelang, 1973; Marcos et al., 1986).

This study showed that the association interval level variables between peer involvement and both delinquency and illegal substances is statistically significant but positively related. In the meantime, even though there is a direct correlation between dependent and independent variables, possibly other elements added to equation affected the multivariate analysis results and peer involvement turned into a statistically non-significant result. Furthermore, according to bivariate analysis, peer involvement is the third contributing element in the measurement of delinquency and when peer involvement increases one unit, the likelihood of committing delinquent behaviour increases by 7 percent.

The result of this study contradicts social control theory assumptions. The incompatible result of the measurement of peer involvement might be due to methodological deficiency, as mentioned above, and similarly, in family involvement. Peer involvement was measured in this study as how often students watch TV, DVDs, travel with their friends, play computer games, etc., which may not reflect conventional activities.

However, in the soul of social control theory, as mentioned above, involvement is measured in the context of conventional activities. It should be accepted that this study

could measure how much time is spent working on homework with friends instead of asking the time spent watching TV together.

On the other hand, unfortunately, there are limited activities among school students in Turkey to contribute to conventional activities, such as creating study and sports groups in schools. Therefore, not only creating such groups but also forcing these groups to work together in a place other than the school environment is one of the essentials of developing a routine of conventional activities among school children (ŞEKER, ÇINAR, & ÖZKAYA, 2004). Additionally, out-of-school sports activities are also significantly and positively related to delinquency in this study, which is consistent with the literature findings because it is a controversial topic to explore whether unsupervised activities are conventional activities.

Social control theory proposes that the level of students' attachment to conventional values is set, whether or not they will gain delinquent or non-delinquent friends (Aliverdinia & Pridemore, 2007; Hirschi, 1969). In this term, as long as conventional environments are created for students, they will divert their interest from inconvenient environments to proper friendship groups. From this perspective, a guidance counsellor mechanism in the schools should be more active in diverting children toward conventional friendship groups.

Hypothesis regarding attachment to school:

H8: School commitment negatively affects delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4 and Table 5, as an output of bivariate analysis, p-value is 0.000 for delinquency and 0.004 for illegal substance use—lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that school commitment is statistically significant in the case of delinquency and illegal substance use, is accepted. In other words, school commitment affects students' involvement in delinquency and illegal substance use.

In the multivariate analysis output results shown in Table 11, significant p-value is 0.240 for delinquency and 0.738 for illegal substance use, higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that school commitment is not statistically

significant both for delinquency and illegal substance use, is accepted, and the alternative hypothesis is rejected.

Bivariate analysis results showed that the association of interval level variables between school commitment and both delinquency and illegal substance use are statistically significant and negatively correlated; however, other elements added into equation in multivariate analysis affected the relation between dependent and independent variables and it became non-significant. According to researchers, school has an important role in terms of socializing and developing the social norms of students. Therefore, it is claimed that there is a negative correlation between school commitment and both delinquency and illegal substance use (Booth et al., 2008; Bree & Pickworth, 2005; Erickson et al., 2000; Ford, 2005; Kelly & Pink, 1973; Liska & Reed, 1985; J. S. Lopez et al., 2001; Marcos et al., 1986; Ozbay & Ozcan, 2006; Reiss, 1951; T. Thornberry et al., 1991; Zhang & Messner, 1996). However, this study could not find a statistically significant correlation between those variables.

As one of the first steps of socialization for children and youths in the contemporary world, school has an essential role in developing the social norms and bonds of children toward society (Zhang & Messner, 1996).

On the other hand, the school environment and the relation between students and teachers or other instruments in the school affect students' attachment and perception toward the school. For example, a study conducted in Bagcilar borough showed that the classes in the schools are very crowded with almost 76 students in one class in the primary schools (KILINÇ, 2011). It is obvious that, in such a crowded class, teachers cannot give adequate education to and set up quality communication with the children, which affects the attitudes of children toward both teachers and the school. Therefore, it is not surprising to find a lack of correlation between the two variables.

H9: Attachment to teachers negatively affects delinquency and illegal substance use.

The results depicted in Table 3 show that 57.1 percent of respondents think they are getting on well with their teachers. Good communication with teachers is a modal group for both delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4, as an output of bivariate analysis, p-value is 0.000 for delinquency and 0.000 for illegal substance use, lower the critical p-value of 0,05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that students are getting on well with their teachers, is accepted.

In the multivariate analysis output results shown in Table 11, significant p-value is 0.503 for delinquency and 0.198 for illicit substance use, higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that getting on well with the teachers is not significant in the case of delinquency and illegal drug use, is accepted. The alternative hypothesis is rejected.

In his original study, Hirschi (1969) measured school attachment as closeness of the students to their teachers. Various studies claim that there is a statistically significant and negative correlation between attachment to teachers and both delinquency and substance use (Erickson et al., 2000; R. Felson & Staff, 2006; Greenberg, 1999; Hirschi, 1969; Ozbay & Ozcan, 2006; Özbay, 2008); however, the results of this study showed that there is no correlation between attachment to teachers and both delinquency and illegal substance use, which is consistent with the study of Ngai and Cheung conducted in 2003.

The main factor that gives such a result might be tied to the issue of crowded classes and lack of personal interest of the teachers in the students because of inconvenient school conditions in Turkey. Counselling teacher mechanism cannot work in such crowded classes and schools.

On the other hand, it is a subjective issue to measure closeness of students and teachers. Perception of relationship level might change between teacher and student. Therefore, data collection should involve more than the subjective approach. Therefore, rather than understanding how students get on with their teachers, other perspectives such as how much students would like to be their teachers, how much students respect their teacher, how much students would like to share their feelings with their teachers and most importantly, how much a teacher finds students close to him/her should be investigated.

H10: Mathematics grade point average (GPA) negatively affects delinquency and illegal substance use.

H11: Linguistics grade point average (GPA) negatively affects delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4, as an output of bivariate analysis, p-value is 0.000 for delinquency and 0.000 for illegal substance use—lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that the mathematics grade point average is statistically significant with delinquency and illegal substance use, is accepted.

Based on bivariate results, which are presented in Table 4, as an output of bivariate analysis, p-value is 0.200 for delinquency is higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that the linguistics grade point average (GPA) is not statistically significant, is accepted, and the alternative hypothesis is rejected. However, in bivariate analysis, p-value is 0.014 for illegal substance use, lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that linguistic grade point average is statistically significant with illegal substance use, is accepted.

In the multivariate analysis output results shown in Table 11, in the measurement of GPA in mathematics, the p-value is 0.951 for delinquency and 0.084 for illicit substance use, higher than the critical p-value of 0.05; and in measurement of GPA in linguistics, the p-value is 0.167 for delinquency and 0.468 for illicit substance use, higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that both the mathematics GPA and linguistics GPA are not statistically significant in the case of delinquency and illegal drug use, is accepted. The alternative hypothesis is rejected.

So far, studies have shown that there is a negative correlation between academic achievement and both delinquency and illegal substance use (Andrews et al., 1991; Durkin et al., 2007; R. Felson & Staff, 2006; Hindelang, 1973; Hirschi, 1969; Krohn & Massey, 1980b; J. S. Lopez et al., 2001; Maguin & Loeber, 1996; Ozbay & Ozcan, 2008; Polk et al., 1974; Razzino et al., 2004; A. Rhodes & Reiss, 1969). In fact, researchers

pointed out that grade point average is the most effective way of measuring academic achievement (Krohn & Massey, 1980b). However, even if it is rare, some researchers have claimed that there is no correlation between academic achievement and delinquency (R. Felson & Staff, 2006).

This study showed that a GPA in mathematics and a GPA in linguistics are not statistically significant in the measurement of delinquency; however, a GPA in mathematics is statistically significant and negatively correlated with illegal substance use. According to analysis, a GPA in mathematics is the fifth contributing element in the measurement of illegal substance use and when the GPA in mathematics increases one unit, the likelihood of using illegal substances decreases by 21 percent.

According to researchers, the relation between academic achievement and delinquency is more complex than is thought because there are various factors, such as the relations between students and teachers, psychological differences among students, attitudes toward school property, failing to attend the courses or other intervening variables that might affect the equation. Furthermore, acquired cultural values prior to education might have an effect on both education and delinquency, such as disapproving education or having a problem with authority (A. Rhodes & Reiss, 1969).

Other important factors for low academic performance are related to anti-social behaviour, lack of social activities, and lack of self-confidence (YAVUZER, 2011). However, studies have shown that one of the main purposes of involvement in delinquency is to gain a new social environment and increase socialization. From this perspective, the effect of academic achievement may not be observed among middle-school students in the short term; however, there is no sign that academic achievement will not affect future academic success.

Furthermore, in measuring academic achievement, this study only looked into grades; however, when the time spent on homework was added to equation, it was observed that the correlation found a statistical significance between time spent doing homework and delinquency, which is going to be discussed in the below hypothesis. Additionally, teachers' evaluations of their students were not considered in measuring academic achievement. Previous studies showed that in predicting delinquency, teachers'

assessments can give more precise results than academic achievement (R. Felson & Staff, 2006).

Finally, academic achievement of the students was measured based on information in self-reports. However, such information from students might be considered subjective. For example, in one of the questions, students were asked whether they were satisfied with their academic performance. This very subjective question may not reflect the truth because if the student did not work enough at school to get high enough grades to pass a class may still be considered satisfactory to the student. Nevertheless, this situation cannot be interpreted as a successful academic achievement. Therefore, the self-report measures might give inadequate results.

Hypothesis regarding commitment:

H12: Future expectation and aspiration negatively affects delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4, as an output of bivariate analysis, p-value is 0.115 for delinquency, higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that future expectation and aspiration are not statistically significant, is accepted, and the alternative hypothesis is rejected. As an output of bivariate analysis, p-value is 0.047 for illegal substance use, lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that future expectation and aspiration are statistically significant in the case of illegal substance use, is accepted.

In the multivariate analysis output results shown in Table 11, as an output of multivariate analysis in the measurement of future expectation and aspiration, p-value is 0.315 for delinquency and 0.833 for illicit substance use—higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that future expectation and aspiration are not statistically significant in the case of delinquency and illegal drug use, is accepted, and the alternative hypothesis is rejected.

Social control theory assumes that there is a negative correlation between future expectation and aspiration, and both delinquency and illegal substance use (Agnew,

1991; Dornbusch, Erickson, Laird, & Wong, 2001; Durkin et al., 2007; Greenberg, 1999; Hirschi, 1969). People who do not have anything to lose are at the edge of making a critical decision to cross the line of becoming involved in delinquent behaviour. Even though it cannot be applied to the students who are subjects of this study because they were asked about kicking, hitting, etc—earning easy money via involvement in delinquency might be preferred by those who have weak bonds to conventional values. However, this study showed that there is no correlation between future expectations/aspirations and both delinquency and illegal substance use.

According to researchers, it is difficult to measure the intensity of aspiration because this can vary from one person to another (Hindelang, 1973). Therefore, future expectation and aspiration should be controlled with other variables, such as academic achievement. In fact, in this study, academic achievement and attachment to teachers are not statistically significant in the measurement of both delinquency and illegal substance use.

On the other hand, the Council of Higher Education statistics have shown that in 2010, 1.587.410 candidates applied for university exams; however, only a 374.068 quota was reserved for 4 year universities. When we look at the statistics, it is obvious that only 23.5 percent of the high school graduates can continue to a four year undergraduate program. In this respect, establishing the relation between future expectation and aspiration for further education and delinquency may not reflect the correlation between the two variables. Especially considering the overwhelmingly crowded classes in schools, students may not attach their aspirations and expectancies with the school. In this perspective, the measurement of aspiration and expectancies may not be related to delinquency and illegal substance use.

Hypothesis regarding involvement:

H13: Time spent in out-of-school sports activities positively affects delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4, as an output of bivariate analysis, p-value is 0.000 for delinquency and 0.000 for illegal substance use—lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative

hypothesis, which implies that out-of-school sports activities positively affect delinquency and illegal substance use and are statistically significant, is accepted.

In the multivariate analysis output results shown in Table 11 in the measurement of out-of-school sports activities, p-value is 0.000 for delinquency, lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that out-of-school sports activities positively affect delinquency and are statistically significant, is accepted

However, as an output of multivariate analysis in the measurement of out-of-school sports activities, p-value is 0.736 for illegal substance use is higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that out-of-school sports activities have a positive effect and are not statistically significant in the case of illegal drug use, is accepted, and the alternative hypothesis is rejected.

The measurement of involvement of sports activities is a controversial issue among the researchers because while some researchers claim that engaging in sports activities helps students to socialize and keeps them busy to stay away from delinquency (Huebner & Betts, 2002; Schafer, 1969; Segrave & Hastad, 1984), others claim that some gang groups acquire their members from among those who are involved in out-of-school sports activities (Booth et al., 2008; Cernkovich & Giordano, 1992; Segrave & Hastad, 1984). According to researchers, students conduct sports activities under the control of their coaches, which decreases involvement in delinquent behaviour and illegal substance use.

This study showed that there is a statistically significant and positive correlation between out-of-school sports activities and delinquency, which is consistent with the study of proponents. Out-of-school sports activities are the second strongest contributing element in the measurement of delinquency and when out-of-school sports activities increase one unit, the likelihood of committing delinquent behaviour increases by 6 percent.

School is the best environment for students in which to socialize. Especially after spending long hours in the classes, engaging in extra activities such as sports relaxes students and increases intimacy between friends, as long as sports activities are

conducted under supervision of the school authorities. In these types of sports activities, not only physical development is achieved but also the students' school performance can be enhanced. On the other hand, in western countries such as the United States, students are offered scholarships to continue their further education; however, in countries such as Turkey, there are limited opportunities to receive such a kind of offer.

On the other hand, out-of-school sports practices carried out without the supervision of authorities provide the best environment for those who would like to approach students for different purposes. Some prior studies have shown that some gang groups gain their members among those who are doing out-of-school activities without supervision. Besides, during sports contests, students take a first step toward delinquency by cheating in the contests.

On the other hand, students who continue out-of-school sports activities are more likely to drop classes, which affects their school performance. In this perspective, students become vulnerable external factors. Therefore, it should be stressed that there is a difference between engaging in sports activities in school and out-of-school sports activities that occur outside the supervision of authorities.

As mentioned before, delinquent behaviour is measured by kicking, hitting and pushing, which is also in the nature of most sports; however, illegal substance use requires special effort. In this perspective, involvement in delinquent behaviour does not necessarily mean being open to using illegal substances.

Illegal substance use was found to be statistically non-significant. There might be different factors leading to such a result. First, in this study, while only 9,2 percent of the students admitted that they used illegal drugs, 90,8 percent of the students did not admit such a thing. Therefore, variance in the multivariate analysis is limited, which might affect the analysis results.

Second, because of the side effects of illegal substance use, it may not be preferred by the students who engage in out-of-school sport activities. Even though both of the actions require criminal sanctions, there are differences between involvement in delinquent behaviour and illegal substance use. While delinquency might occur at

unexpected moments in normal social life, there should be intention and effort in illegal substance use.

Third, as mentioned in other hypotheses, a cross-sectional study may not reflect future possible illegal substance use risk. Furthermore, this study cannot distinguish between experimental illegal substance use and problematic illegal substance use. Therefore, illegal substance use should be measured in longitudinal studies.

H14: Time spent at work positively affects delinquency and illegal substance use.

The results depicted in Table 3 show that 89,9 percent of the respondents are not working. The “not working” group is a modal group for both delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4, as an output of bivariate analysis for time spent at work, p-value is 0.000 for delinquency and 0.000 for illegal substance use— lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that time spent at work is statistically significant in the case of delinquency and illegal substance use, is accepted.

In the multivariate analysis output results shown in Table 11 in the measurement of time spent at work, p-value is 0.208 for delinquency, higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that time spent at work affects delinquency and is not statistically significant, is accepted, and the alternative hypothesis is rejected. However, as an output of multivariate analysis, p-value is 0.000 for illegal substance use, lower than the critical p-value of 0.05. Thus the null hypothesis is rejected and the alternative hypothesis, which implies that time spent at work is statistically significant, is accepted.

According to social control theory, there is a positive correlation between time spent doing work outside of school and delinquency because time spent at work is not a conventional activity (Hirschi, 1969). Other studies also found support for the social control theory assumption (Durkin et al., 2007). However, some other studies found a negative correlation between working outside of school and delinquency. For example, Ngai and Cheung (2003) found that there is a negative correlation between work

experience and illegal driving; in fact, according to these researchers, attachment to work and working experience contribute to decreasing delinquency (Ngai & Cheung, 2003).

This study showed that students who are working outside of school are not statistically significantly different in the measurement of delinquency, while they are statistically significant in the measurement of illegal substance use. According to results, those who are working outside of school are 62 percent more likely to use illegal substances, which is consistent with social control theory assumptions.

In Turkey, it is one of the rare situations for students to work after or before going to school, whereas it is common for the students who are living in western countries. The main purpose of students who work in western countries is to earn enough money or support for themselves, their families, and to help pay for their tertiary education. However, in Turkey, continuing on to university does not cost as much as it does in western countries. Therefore, even though students may not be as well off as their western counterparts, they or their families do not need that amount of money for education, at least for tuition fees.

Even though it is not clear whether students who work outside the school use illegal drugs or whether illegal drug using students work outside the school—it is a fact that students who are using illegal substances need more money than the other students in order to continue to support their habits.

From this perspective, students may not have enough money to buy drugs; therefore, those students who need extra money to buy illegal substances and continue their habit are required to look for job opportunities or possibly, to become involved in delinquent behaviour, such as selling drugs. Either way, those who use drugs have to find money to support their habit.

In the meantime, spending time at school and subsequently at work performed out of school, both eat into family time, which might possibly decrease attachment of students to their families and the supervision of families over their children. As mentioned before, attachment to family is one of the most important factors that keep away children from delinquency and illegal substance use.

H15: Time spent on homework negatively affects delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4 and Table 5, as an output of bivariate analysis for time spent doing homework, p-value is 0.000 for delinquency and 0.000 for illegal substance use, lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that time spent doing homework is statistically significant in the case of delinquency and illegal substance use, is accepted.

In the multivariate analysis output results shown in Table 11, in the measurement of time spent doing homework, the p-value is 0.025 for delinquency, lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that time spent doing homework is statistically significant, is accepted. However, as an output of multivariate analysis, p-value is 0.909 for illegal substance use, higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that time spent doing homework is not statistically significant in the case of illegal substance use, is accepted, and the alternative hypothesis is rejected.

Studies showed that there is a negative but weak correlation between time spent on homework and delinquency (Durkin et al., 2007; Greenberg, 1999). However, others have claimed that there is no correlation between the two variables (Miller et al., 2006; Paternoster et al., 1982; Rankin, 1976).

This study showed that there is a statistically significant and negative correlation between time spent on homework and delinquency; however, there is no significant correlation with illegal substance use. Consistent with literature, the results showed that time spent on homework is the weakest contributing element in the measurement of delinquency and when time spent on homework increases one unit, the likelihood of committing delinquent behaviour decreases by 12 percent.

According to social control theory, students who engage in conventional activities are less likely to become involved in delinquent behaviour. Additionally, the old saying, "Idle hands are evil's hands", implies that if the students do not engage in conventional activities, they are instead involved in other types of activities, such as delinquency.

However, as mentioned before, using illegal substances requires additional efforts, such as financial power (with most types of drugs), a dedicated place to use drugs and intention to use the illegal substance; unlike delinquency, which might occur suddenly and without planning in social life. Therefore, it is understandable to observe the non-significant correlation between homework and illegal substance use. Illicit substance users look for and find opportunity to use illicit drugs in any circumstance, as long as they escape supervision. In fact, they create their opportunity to continue their habit. From this perspective, this study has also found a significant correlation between supervision and illegal substance use, which is consistent with other findings. Nevertheless, it should be accepted that this study cannot be sure whether illegal substance user students in this study are experimental or problematic substance users.

On the other hand, this study uses cross-sectional data rather than longitudinal data. Therefore, it should be always considered that the relation between homework and illegal substance use may not be observed in a very short span of time, but it might be seen over a long period.

However, in order to commit delinquent behaviour, people do not have to look for the opportunity. Especially, the type of delinquent behaviour that has been measured in this study includes kicking, hitting and punching. Therefore, students do not need to look for the opportunity; however, in order to become involved such a kind of behaviour, they have to find time to interact with their friends during and after classes.

As a result, it does make sense to find the correlation between delinquency and homework, while, in the meantime, there is no correlation between homework and illegal substance use.

Hypothesis regarding belief:

H16: Honesty negatively affects delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4 and Table 5, as an output of bivariate analysis for honesty, the p-value is 0.000 for delinquency and 0.001 for illegal substance use, lower than the critical p-value of 0.05. Thus, the null hypothesis is

rejected and the alternative hypothesis, which implies that honesty is statistically significant in the case of delinquency and illegal substance use, is accepted.

In the multivariate analysis output results shown in Table 11, in the measurement of honesty, the p-value for delinquency is 0.025, lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that honesty is statistically significant, is accepted. However, as an output of multivariate analysis, the p-value is 0.922 for illegal substance use, higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that honesty is not statistically significant, is accepted, and the alternative hypothesis is rejected.

Social control theory assumes that there is a negative and statistically significant correlation between belief and both delinquency and illegal substance use (Hirschi, 1969). Prior studies also found consistent results with social control theory (Alarid et al., 2000; Jensen, 1969; Wiatrowski et al., 1981); in fact, study results showed that belief is the strongest predictor of delinquency (Durkin et al., 2007; Hindelang, 1973; Hirschi, 1969; Krohn & Massey, 1980b; Ngai & Cheung, 2003; Ozbay & Ozcan, 2006; Özbay, 2008; Paternoster et al., 1982). However, Johnson et al. (2001) could not find a significant correlation between delinquency and belief.

Moreover, this study found that honesty is also statistically significant and negatively related with delinquency. Honesty is the fourth contributing element in explaining delinquency. When honesty increases by one unit, the likelihood of committing delinquent behaviour decreases by 4 percent.

Measuring honesty is one of the difficult parts of this study because students might reflect their real attitudes regarding the type of delinquency that does not require serious sanctions after their inappropriate behaviour; however, they might be afraid of confessing to illegal substance use, which requires serious sanctions.

On the other hand, illegal substance use is related to habit. Even though previous studies showed that illegal substance users are more likely vulnerable to committing other types of delinquent behaviour, it is not necessarily so that they will be involved in any delinquent behaviour.

H17: Trust in conventional institutions negatively affects delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4 and Table 5, as an output of bivariate analysis for trust in conventional institutions, p-value is 0.000 for delinquency and 0,012 for illegal substance use—lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that trust in conventional institutions is statistically significant in the case of delinquency and illegal substance use, is accepted.

In the multivariate analysis output results shown in Table 11, in the measurement of trust in conventional institutions, p-value is 0.014 for delinquency, lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that trust in conventional institutions is statistically significant, is accepted. However, as an output of multivariate analysis, p-value is 0.725 for illegal substance use, higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that trust in conventional institutions is not statistically significant, is accepted, and the alternative hypothesis is rejected.

Consistent with most prior research, this study also found a statistically significant and negative correlation between trust in conventional institutions and delinquency. According to statistics, trust in conventional institutions is the sixth contributing element in explaining delinquency. When trust in conventional institutions increases one unit, the likelihood of committing delinquent behaviour decreases by six percent.

Social control theory assumes that there is a negative and statistically significant correlation between belief and both delinquency and illegal substance use (Hirschi, 1969). Prior studies also found consistent results with social control theory (Alarid et al., 2000; Jensen, 1969; Wiatrowski et al., 1981); in fact, study results showed that belief is the strongest predictor of delinquency (Durkin et al., 2007; Hindelang, 1973; Hirschi, 1969; Krohn & Massey, 1980b; Ngai & Cheung, 2003; Ozbay & Ozcan, 2006; Özbay, 2008; Paternoster et al., 1982). However, Johnson et al. (2001) could not find a significant correlation between delinquency and belief.

Consistent with most prior research, this study also found a statistically significant and negative correlation between trust in conventional institutions and delinquency. According to statistics, trust in conventional institutions is the sixth contributing element in explaining delinquency. When trust in conventional institutions increases one unit, the likelihood of committing delinquent behaviour decreases by six percent.

In multivariate analysis, in the context of trust in conventional institutions, honesty is also statistically significant and negatively related with delinquency. Honesty is the fourth contributing element in explaining delinquency. When honesty increases one unit, the likelihood of committing delinquent behaviour decreases by 4 percent.

Recent public research conducted by TNS showed that trust in conventional institutions varies in the case of institutions in Turkey. For example, trust in the Turkish Armed Force is at 79 percent with the highest rate; followed by the police at 77.4 percent, the Department of Religious Affairs at 62.7 percent, the Presidency at 56.7 percent, the Constitutional Court at 51.3 percent, and the Prime Ministry at 50 percent.

Another public research study conducted by SONAR showed that the Turkish Armed Forces enjoyed the highest rate of trust at 75,3 percent, followed by the Presidency at 68.7 percent, the police at 66.2 percent, the Turkish Parliament at 59.2 percent, the Prime Ministry at 49.7 percent, and justice at 49.2.

On the other hand, studies conducted by the European Commission in the European Social Survey showed that the trust level of the European Police varied in accordance to the country. For example, Finland and Denmark have the highest rate at over 80 percent; in the UK it is slightly over than 50 percent; and in the Russian Federation the trust level is at the lowest rate with slightly over 20 percent. When trust in the judicial authorities was investigated in same survey, it was seen that trust in judicial authorities was more or less consistent with trust in Police.

Even though there cannot be a distinction between institutions, the police and judicial authorities are the most important institutions to be found in the display window of states from the perspective of their society. Therefore, the actions of these institutions most likely affect the trust of society in them.

In this perspective, according to statistics, it should be accepted that there is no significant difference in terms of trust in conventional institutions between Turkish and European citizens. The trust level of both Turkish and European citizens ranges between 50 percent and 70 percent. However, the level of trust in police and judicial authorities shows some differences in both cultures. For example, public surveys showed that the police are more trustworthy than judicial authorities in Turkey, while judicial authorities are more trustworthy than the police in Europe.

The effectiveness of the institutions contributes to the trust level of citizens in these institutions. For example, according to statements of the Justice Minister in 2010, 1,902,667 cases were opened in the Turkish courts and the average time taken to close these cases was 266 days. Delaying the dispensation of justice obviously affects perception of the citizens in the justice system, which is consistent with the previous surveys carried out by TNS and SONAR.

On the other hand, the difference between a significant level of trust in conventional institutions on the one hand, and between delinquency and illegal substance use on the other hand, can be explained vis-à-vis the punishment given after people are caught committing a crime. In other words, the respect of people toward the police increases when they understand/see that the perpetrators will be apprehended as a consequence of their criminal behaviour, which is one of the elements that gives strength to the belief. Escaping the consequences of crime is encouragement for people to commit further delinquent acts (Jensen, 1969).

In this perspective, the measurement of delinquency does not require serious sanctions for hitting, kicking and punching; however, illegal substance use has serious sanctions. It does not mean that those who use illegal substances do not have respect for institutions and the law; however, they might blame themselves rather than institutions, contrarily to the case of delinquency. In fact, illegal substance use is a personal choice. Even though taking enough precaution might prevent use of illegal substances and cause people to abandon such a habit, the difference between prevention and personal choice should be understood.

Related to the above mentioned issue, precautions taken by police around the schools might affect students' behaviour regarding delinquency; however, illegal substance users do not use illegal drugs in public, but mostly prefer dedicated places. Therefore, school students continue their behaviour out of sight of police, which might cause the idea of police cannot prevent their habit.

Furthermore, from the methodological perspective, although the variance of delinquency is normally distributed, illegal substance use is positively skewed. For example, while 57.9 percent of the students were not involved in any delinquent behaviour, only 42.1 percent of the students were involved in delinquency. However, while 90.8 percent of the students never used illegal substances, only 8.2 percent of the students used any type of illegal substance. Therefore, the variance of the dependent variables might affect the analysis results.

As a result of these perceptions, delinquency is found significantly correlated with trust in conventional institutions, while illegal drug use is not statistically significant.

H18: Religiosity negatively affects delinquency and illegal substance use.

Based on bivariate results, which are presented in Table 4 and Table 5, as an output of bivariate analysis for trust in conventional institutions, p-value is 0.005 for delinquency and 0.000 for illegal substance use—lower than the critical p-value of 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis, which implies that religiosity is statistically significant in the case of delinquency and illegal substance use, is accepted.

In the multivariate analysis output results shown in Table 11, in the measurement of religiosity in conventional institutions, the p-value is 0.988 for delinquency and 0.928 for illegal substance use, higher than the critical p-value of 0.05. Thus, the null hypothesis, which implies that religiosity is not statistically significant, is accepted, and the alternative hypothesis is rejected.

In his original study, Hirschi (1969) did not use religiosity as a social control element (Hirschi, 1969; Marcos et al., 1986). In their further studies, Hirschi and Stark (1969) researched the correlation between religiosity and delinquency, but they could not find a statistically significant correlation between the two variables. However, other studies

showed that there is a statistically significant and negative correlation between religiosity and both delinquency and illegal substance use (Benda, 1997; Bree & Pickworth, 2005; Burkett & Warren, 1987; Chu, 2007; Cochran et al., 1994; Evans et al., 1995; B. Johnson et al., 2001; J. S. Lopez et al., 2001; Marcos et al., 1986; Ng, 2002; Simons et al., 2004; Sloane & Potvin, 1986; Welch, 2005; Wills et al., 2003).

This study showed that there is no statistically significant correlation between religiosity and both delinquency and illegal substance use, which is consistent with Hirschi and Stark's study.

According to researchers, the measurement of religiosity is a very delicate issue because there are differences between believing in religious sanctions and practicing them (Burkett & Warren, 1987). Hirschi and Stark (1969), in their study, stated that people who attend church activities are slightly more likely abide by the laws and respect the police, but there is no difference between church attendees and non-attendees in terms of believing in sanctions after death and the error of involving oneself in delinquency (Evans et al., 1995; Hirschi, 1969). However, it is difficult to decide which criteria should be considered in the measurement of delinquency. Prior studies showed that reading and listening to religious documents (religious salience), involvement in religious activities and religious practices have different effects on both delinquency and illegal substance use (Chu, 2007; Evans et al., 1995; Wallace et al., 2007).

In Turkish society, religious beliefs and the cultural background are mixed with each other. According to researchers, religious belief is the most highly contributing factor in shaping Turkish culture, and the alcohol consumption rate among Turkish students is lower than that of European students because of religious beliefs. (ÖZYURT & DİNÇ, 2006). Even though, in time, religious beliefs reshaped most cultural values in religious forms, there are still some remaining cultural beliefs that survived. For example, both drinking alcohol and eating pork is forbidden both religiously and culturally; however, drinking does not produce the same reaction as eating pork. Similarly to this example, having an affair is one of the forbidden behaviours for both males and females, both religiously and culturally; however, if a male has an affair, society may ignore this behaviour or not blame the male as much as they would blame the female. Therefore, in

order to differentiate religiosity and cultural effect, religious practices should be measured, rather than religious sanctions. However, this study measured whether religion is important for the person interviewed, whether his/her friends are religious people, etc. In this perspective, religious sanction, rather than religious practices, might affect the result of analysis. Therefore, religious practices should be measured rather than religious belief, in order to understand the effect of religion on both delinquency and illegal substance use.

Social control variables according to delinquency types

Delinquency

Trust in conventional institutions, honesty, rule setting, parental monitoring, time spent on homework, out-of-school sports activities, peer delinquency, peer involvement, GPA linguistics and gender are statistically significant; however, rest of the variables are not statistically significant in the measurement of delinquency; while trust in conventional institutions, honesty, time spent on homework and parental monitoring have a negative effect on delinquency, rule setting, out-of-school sports activities, peer delinquency, peer involvement, GPA linguistics and gender have a positive effect on delinquency.

In other words, students who trust more in conventional institutions such as the police, judicial system, who believe strongly in the norms of the society, who spent more time on their homework, and whose parents have greater indirect control over their children are less likely to be involved in delinquent behavior. On the other hand, students whose parents set more rules, who engage in out-of-school sports activities, who have more delinquent friends, who spend more time with their friends or do more activities with their friends, whose linguistic grades are higher, and male students in general, are more likely to be involved in delinquent behavior.

When regression analysis was conducted in accordance to genders, honesty, time spent on homework, peer delinquency and peer involvement remained statistically significant and the rest of the variables remained non-significant for females. While honesty and time spent on homework are negatively correlated with delinquency, attachment to delinquent peers and peer involvement are positively correlated with delinquency for females.

On the other hand, trust in conventional institutions, honesty, family structure, rule setting in the family, parental monitoring, out-of-school sports activities, working out of school times, attachment to delinquent peers and GPA linguistics are statistically significant for males. While trust in conventional institutions, honesty, family structure and working out of school times are negatively correlated, rule setting, out-of-school sports activities, attachment to delinquent peers and GPA linguistics are positively correlated with delinquency for males.

Regression analysis based on age showed that honesty, quality of communication in the family, family structure, rule setting, parental monitoring, out-of-school sports activities, peer delinquency and attachment to teachers are statistically significant for those who were born before 1991. While honesty, family structure, parental monitoring and attachment to teachers are negatively correlated with delinquency, quality of communication in the family, rule setting, out-of-school sports activities and attachment to delinquent peers are positively related with delinquency.

Trust in conventional institutions, parental monitoring, time spent on homework, out-of-school sports activities, attachment to delinquent peers, and peer involvement are statistically significant for those students who were born after 1991. While trust in conventional institutions, parental monitoring, and time spent on homework are negatively correlated with delinquency, out-of-school sports activities, attachment to delinquent peers and peer involvement are positively correlated with delinquency.

Table 12: Hypothesis Testing Results for Delinquency

Hypothesis		Category	Testing	Explanation
1- Family structure negatively affects delinquency	Multivariate	Total	Rejected	P=,441
		Before 1991	Accepted	P=,071
		After 1991	Rejected	P=,503
		Female	Rejected	P=,389
		Male	Accepted	P=,061
	Bivariate		Rejected	P=,185
2- Family involvement negatively affects delinquency	Multivariate	Total	Rejected	P=,756
		Before 1991	Rejected	P=,985
		After 1991	Rejected	P=,283
		Female	Rejected	P=,386
		Male	Rejected	P=,692
	Bivariate		Accepted	P=,038
3- Quality of communication in the family negatively affects delinquency	Multivariate	Total	Rejected	P=,189
		Before 1991	Accepted	P=,072
		After 1991	Rejected	P=,183
		Female	Rejected	P=,389
		Male	Rejected	P=,627
	Bivariate		Accepted	P=,000
4- Rule setting negatively affects delinquency	Multivariate	Total	Rejected (+)	P=,015
		Before 1991	Rejected (+)	P=,010
		After 1991	Rejected	P=,149
		Female	Rejected	P=,155
		Male	Rejected (+)	P=,044
	Bivariate		Accepted	P=,000
5- Parental monitoring negatively affects delinquency	Multivariate	Total	Accepted	P=,022
		Before 1991	Accepted	P=,012

		After 1991	Accepted	P=,030
		Female	Rejected	P=,903
		Male	Accepted	P=,010
	Bivariate		Accepted	P=,000
6- Attachment to delinquent peers positively affects delinquency	Multivariate	Total	Accepted	P=,000
		Before 1991	Accepted	P=,009
		After 1991	Accepted	P=,000
		Female	Rejected	P=,389
		Male	Accepted	P=,000
	Bivariate		Accepted	P=,000
7- Peer communication negatively affects delinquency	Multivariate	Total	Rejected	P=,745
		Before 1991	Rejected	P=,229
		After 1991	Rejected	P=,377
		Female	Rejected	P=,864
		Male	Rejected	P=,711
	Bivariate		Accepted	P=,008
8- Peer involvement negatively affects delinquency	Multivariate	Total	Rejected (+)	P=,008
		Before 1991	Rejected	P=,113
		After 1991	Rejected (+)	P=,000
		Female	Rejected (+)	P=,009
		Male	Rejected	P=,239
	Bivariate		Rejected (+)	P=,000
9- School commitment negatively affects delinquency	Multivariate	Total	Rejected	P=,225
		Before 1991	Rejected	P=,530
		After 1991	Rejected	P=,114
		Female	Rejected	P=,467
		Male	Rejected	P=,296
	Bivariate		Accepted	P=,000

10- Mathematic grade point average (GPA) negatively affects delinquency	Multivariate	Total	Rejected	P=,680
		Before 1991	Rejected	P=,453
		After 1991	Rejected	P=,574
		Female	Rejected	P=,728
		Male	Rejected	P=,958
	Bivariate		Accepted	P=,000
11- Linguistic grade point average (GPA) negatively affects delinquency	Multivariate	Total	Accepted	P=,058
		Before 1991	Rejected	P=,186
		After 1991	Rejected	P=,281
		Female	Rejected	P=,406
		Male	Accepted	P=,049
	Bivariate		Rejected	P=,200
12- Attachment to teachers negatively affects delinquency	Multivariate	Total	Rejected	P=,484
		Before 1991	Accepted	P=,057
		After 1991	Rejected	P=,880
		Female	Rejected	P=,399
		Male	Rejected	P=,159
	Bivariate		Accepted	P=,000
13- Future expectation and aspiration negatively affects delinquency	Multivariate	Total	Rejected	P=,216
		Before 1991	Rejected	P=,586
		After 1991	Rejected	P=,503
		Female	Rejected	P=,297
		Male	Rejected	P=,698
	Bivariate		Rejected	P=,135
14- Out of school sport activities positively affects delinquency	Multivariate	Total	Accepted	P=,036
		Before 1991	Accepted	P=,023
		After 1991	Accepted	P=,001
		Female	Rejected	P=,155

		Male	Accepted	P=,024
	Bivariate		Accepted	P=,000
15- Time spent at work positively affects delinquency	Multivariate	Total	Rejected	P=,253
		Before 1991	Rejected	P=,122
		After 1991	Rejected	P=,456
		Female	Rejected	P=,155
		Male	Rejected (-)	P=,038
	Bivariate		Accepted	P=,000
16- Time spent at homework negatively affects delinquency	Multivariate	Total	Accepted	P=,083
		Before 1991	Rejected	P=,129
		After 1991	Accepted	P=,090
		Female	Accepted	P=,038
		Male	Rejected	P=,764
	Bivariate		Accepted	P=,000
17- Honesty negatively affects delinquency	Multivariate	Total	Accepted	P=,004
		Before 1991	Accepted	P=,004
		After 1991	Rejected	P=,104
		Female	Accepted	P=,021
		Male	Accepted	P=,015
	Bivariate		Accepted	P=,000
18- Trust to conventional institutions negatively affects delinquency	Multivariate	Total	Accepted	P=,072
		Before 1991	Rejected	P=,719
		After 1991	Accepted	P=,009
		Female	Rejected	P=,200
		Male	Accepted	P=,061
	Bivariate		Accepted	P=,000
19- Religiosity negatively affects delinquency	Multivariate	Total	Rejected	P=,712
		Before 1991	Rejected	P=,429

		After 1991	Rejected	P=,926
		Female	Rejected	P=,627
		Male	Rejected	P=,350
	Bivariate		Accepted	P=,005

Illegal substance use

Quality of communication in the family, parental monitoring, working out of school time, attachment to delinquent peers, age and gender are statistically significant; however, the rest of the variables are not statistically significant in the measurement of illegal substance use. While parental monitoring and working outside of school have a negative effect on illegal substance use, quality of communication, attachment to delinquent peers, age and gender have a positive effect on illegal substance use.

In other words, students who discuss more their personal issues with their parents or receive advice from their parents, who have more delinquent peers or spend time with their delinquent peers, who are older and are males are more likely to use illegal substances; while students who are more controlled by their parents and who work after school are less likely to use illegal substances.

When regression analysis was conducted accordance to genders, quality of communication and peer involvement remained statistically significant while the rest of the variables turned out to be non significant for females. Furthermore, both variables are positively correlated with illegal substance use for females.

On the other hand, parental monitoring, working out of school time and peer delinquency are statistically significant for males. While parental monitoring and working out of school time are negatively correlated with illegal substance use, attachment to delinquent peers is positively correlated for males.

Regression analysis based on age showed that family structure, parental monitoring, time spent on homework, out-of-school sports activities, working out of school, attachment to delinquent peers, peer involvement and school commitment are statistically significant for those who were born before 1991. Except for attachment to delinquent peers, the rest of the significant variables are negatively correlated with illegal substance use.

Parental monitoring, working out of school time, attachment to delinquent peers and peer involvement are statistically significant for those who were born after 1991. While parental monitoring and working out of school time are negatively correlated with illegal

substance use, attachment to delinquent peers and peer involvement are positively correlated with illegal substance use.

Table 13: Hypothesis Testing Results for Illegal Substance Use

Hypothesis		Category	Testing	Explanation
1- Family structure negatively affects delinquency	Multivariate	Total	Rejected	P=,203
		Before 1991	Accepted	P=,033
		After 1991	Rejected	P=,221
		Female	Rejected	P=,516
		Male	Rejected	P=,466
	Bivariate		Rejected	P=,052
2- Family involvement negatively affects delinquency	Multivariate	Total	Rejected	P=,311
		Before 1991	Rejected	P=,122
		After 1991	Rejected	P=,581
		Female	Rejected	P=,618
		Male	Rejected	P=,330
	Bivariate		Rejected	P=,160
3- Quality of communication in the family negatively affects delinquency	Multivariate	Total	Accepted	P=,096
		Before 1991	Rejected	P=,308
		After 1991	Rejected	P=,404
		Female	Accepted	P=,063
		Male	Rejected	P=,497
	Bivariate		Accepted	P=,000
4- Rule setting negatively affects delinquency	Multivariate	Total	Rejected	P=,391
		Before 1991	Rejected	P=,568
		After 1991	Rejected	P=,559
		Female	Rejected	P=,959
		Male	Rejected	P=,359
	Bivariate		Accepted	P=,000
5- Parental monitoring negatively affects delinquency	Multivariate	Total	Accepted	P=,013
		Before 1991	Accepted	P=,045
		After 1991	Accepted	P=,013
		Female	Rejected	P=,998

		Male	Accepted	P=,008
	Bivariate		Accepted	P=,000
6- Attachment to delinquent peers positively affects delinquency	Multivariate	Total	Accepted	P=,000
		Before 1991	Accepted	P=,010
		After 1991	Accepted	P=,000
		Female	Rejected	P=,488
		Male	Accepted	P=,000
	Bivariate		Accepted	P=,000
7- Peer communication negatively affects delinquency	Multivariate	Total	Rejected	P=,940
		Before 1991	Rejected	P=,750
		After 1991	Rejected	P=,120
		Female	Rejected	P=,835
		Male	Rejected	P=,656
	Bivariate		Accepted	P=,003
8- Peer involvement negatively affects delinquency	Multivariate	Total	Rejected	P=,323
		Before 1991	Accepted	P=,030
		After 1991	Rejected (+)	P=,010
		Female	Rejected (+)	P=,037
		Male	Rejected	P=,821
	Bivariate		Rejected (+)	P=,008
9- School commitment negatively affects delinquency	Multivariate	Total	Rejected	P=,493
		Before 1991	Accepted	P=,040
		After 1991	Rejected	P=,787
		Female	Rejected	P=,663
		Male	Rejected	P=,541
	Bivariate		Accepted	P=,000
10- Mathematic grade point average (GPA) negatively affects delinquency	Multivariate	Total	Rejected	P=,109
		Before 1991	Rejected	P=,137
		After 1991	Rejected	P=,361
		Female	Rejected	P=,551

		Male	Rejected	P=,226
	Bivariate		Accepted	P=,000
11- Linguistic grade point average (GPA) negatively affects delinquency	Multivariate	Total	Rejected	P=,410
		Before 1991	Rejected	P=,736
		After 1991	Rejected	P=,717
		Female	Rejected	P=,941
		Male	Rejected	P=,192
	Bivariate		Accepted	P=,018
12- Attachment to teachers negatively affects delinquency	Multivariate	Total	Rejected	P=,288
		Before 1991	Rejected	P=,675
		After 1991	Rejected	P=,659
		Female	Rejected	P=,393
		Male	Rejected	P=,190
	Bivariate		Accepted	P=,000
13- Future expectation and aspiration negatively affects delinquency	Multivariate	Total	Rejected	P=,948
		Before 1991	Rejected	P=,967
		After 1991	Rejected	P=,379
		Female	Rejected	P=,998
		Male	Rejected	P=,827
	Bivariate		Accepted	P=,047
14- Out of school sport activities positively affects delinquency	Multivariate	Total	Rejected	P=,698
		Before 1991	Accepted	P=,045
		After 1991	Rejected	P=,317
		Female	Rejected	P=,216
		Male	Rejected	P=,562
	Bivariate		Accepted	P=,000
15- Time spent at work positively affects delinquency	Multivariate	Total	Rejected (-)	P=,000
		Before 1991	Rejected (-)	P=,023
		After 1991	Rejected (-)	P=,001
		Female	Rejected	P=,711

		Male	Rejected (-)	P=,000
	Bivariate		Accepted	P=,000
16- Time spent at homework negatively affects delinquency	Multivariate	Total	Rejected	P=,750
		Before 1991	Accepted	P=,063
		After 1991	Rejected	P=,693
		Female	Rejected	P=,810
		Male	Rejected	P=,297
	Bivariate		Accepted	P=,000
17- Honesty negatively affects delinquency	Multivariate	Total	Rejected	P=,762
		Before 1991	Rejected	P=,315
		After 1991	Rejected	P=,702
		Female	Rejected	P=,799
		Male	Rejected	P=,815
	Bivariate		Accepted	P=,003
18- Trust to conventional institutions negatively affects delinquency	Multivariate	Total	Rejected	P=,835
		Before 1991	Rejected	P=,671
		After 1991	Rejected	P=,670
		Female	Rejected	P=,917
		Male	Rejected	P=,744
	Bivariate		Accepted	P=,012
19- Religiosity negatively affects delinquency	Multivariate	Total	Rejected	P=,899
		Before 1991	Rejected	P=,399
		After 1991	Rejected	P=,768
		Female	Rejected	P=,423
		Male	Rejected	P=,616
	Bivariate		Accepted	P=,005

Summary

Hirschi's social control theory has been tested by different scholars and both supporting and rejecting results accumulated since then. However, Hirschi's model has not been tested as much as western countries with Turkish data, specifically with data collected from high school students. This makes this study a unique contribution to the social control theory literature. As stated in the methodology section the data of this study was collected by a survey instrument administered as part of a protocol between Istanbul Metropolitan Municipality and ECAD Actavis. The response rate of the survey was about 94% which makes the results of this study unique too.

As we presented in the previous section different statistical analyses conducted on the survey data. Hypotheses stated in the methodology section were rigorously tested with a logistic regression model. Multivariate analysis results supported some of the hypotheses, and rejected some of them. This chapter discussed findings in the light of social control literature and Turkish cultural context. Each element of Hirschi's social control theory is addressed in a separate section.

CHAPTER 7: CONCLUSION

Introduction

The purpose of this study was to measure social control theory over Turkish high school students. There are two dependent variables, namely delinquency and illegal substance use, and 23 independent variables used in this study to measure social control theory with 18 hypotheses. Additionally, in the literature, the explanatory power of social control theory is controversial on all types of crimes. It has been seen that some theorists have claimed that social control theory can explain certain types of crimes better than others. Therefore, this study provides the opportunity for making comparisons on how much social control theory can explain delinquency and illegal substance use.

On the other hand, so far, social control theory has been applied in most western countries; however, there are limited studies on the subject in Turkey, whose citizens are from a different cultural background. Therefore, this study provides the unique opportunity to see how much social control theory can explain delinquency and illegal substance use in Turkey.

Delinquency and Illegal Substance Use

Delinquency and illegal substance use are two serious menaces that both threaten the individual and society in various ways. For example, illegal substance users steal money in order to support their addiction, or even kill another human being while they are robbing another person. They may harm others, including their family members, while they are under the influence of drugs. Gang members shoot each other in the streets in order to protect their turfs or collect money from honest tradesmen in their neighbourhood by racketeering. Thus, these delinquents and illegal substance users harm not only themselves but their society beyond imagination. People lose their lives, money and assets; mothers and fathers lose their children; governments lose their millions of dollars or whatever currency they use; and, finally, both individuals and society lose their health.

Studies show that violent crimes and illegal substance use rates have increased in Europe in recent years. For example, violent crimes tripled in the United Kingdom and quadrupled in Ireland between 1997 and 2008. Similarly to delinquency, illegal substance

use increased all over the world. Approximately 200 million people use different types of drugs every year. According to estimates, there are 17 million cocaine users, 11 million heroin users, 26 million synthetic drug users and finally, almost 150 million cannabis and its derivatives users throughout the world.

Differences between countries

Comparison of crime and illegal substance use rates showed significant differences between Turkey and European countries. For example, the 2008 Europe Crime Statistics showed that 167,323 cases of violent crimes were reported from Turkey in that year, whereas 1,034,972 cases were reported from England and Wales, and 1,382,012 cases were reported from the United States. On the other hand, when drug trafficking cases were investigated, it was observed that there were 15,366 cases reported from Turkey, whereas 26,425 cases were reported from the United States and 29,841 cases from England and Wales in 2008. According to researchers, the differences in delinquency and illegal substance use rates between Turkey and European countries can be explained vis-à-vis the socio-cultural structure of Turkish society.

Observing delinquency and illegal substance use raises two important questions, one of which is: What are the causes of delinquency and illegal substance use?; and the second is: Why do delinquency and illegal substance use rates differ from one country to another?

One of the major responsibilities of criminology and criminologists is to understand the reasons for delinquency and illegal substance use. So far, academics have followed two different paths to find the causation of delinquency and illegal substance use. While some researchers have tried to understand why people become involved in delinquent behaviour and illegal substance use, other researchers have tried to understand the reasons why some people commit a crime and use illegal substances while others do not. In another words, the question is, why do some people obey the rules while others do not? These two approaches form most of the foundation of current criminological theories.

Based on these two approaches, there are various criminological theories that try to explain causation of crime and illegal substance use. However, as one of the most

prevalent and dominant criminological theories, social control theory has been selected to be tested in this study.

So far, a variety of studies have shown that social control theory has the strongest explanatory power over other criminological theories, in terms of explaining causes of delinquency and illegal substance use. Even though there are some contemporary theories such as cultural, realist and situational crime prevention theories in the literature, social control theory is the most appropriate theory in terms of measuring preventive factors for both delinquency and illegal substance use because its main focus is cultural effects.

According to social control theory, four elements, which are attachment, involvement, commitment and belief, prevent an individual from engaging in delinquent behaviour and illegal substance use. While attachment represents bonds with family, the school, teacher and peers, commitment refers to the assets of individuals, involvement refers to time spent in conventional activities and, finally, belief refers to attitudes and trust in conventional institutions.

However in practice, measuring these elements becomes more complicated than expected. For example, there are various ways to measure attachment to family such as family structure, communication in the family, involvement in the family, and supervision. Every social control theory researcher mentioned how social control theory should be measured in order to understand real preventive factors. From this perspective, some scholars claim that family attachment should be measured via family structure while others claim that family functioning is more important. Thus, this study looked for answers relating to how social control theory explains delinquency and illegal substance use among Turkish students. As a result, for this thesis, the researcher created two research questions and 18 hypotheses to test social control theory in Turkish society.

Cultural differences and the Bagcilar borough

Turkish and western cultures come from very different social, economic and religious backgrounds. For example, Turkish people prefer to live in groups rather than focus on individuality. Big and extended families are one of the most important characteristics of the Turkish family. In Turkish families, children live with their parents until they get

married or move another city, regardless of their age. Therefore, it is quite normal to see 30-40 year old people living with their parents. However, in European countries, people are more likely to be more attentive to their privacy and live independently and individually. As a result of this lifestyle, they leave their home earlier than their Turkish counterparts.

Family structure and characteristics show differences between Turkish and European families. While the very disciplinary and patriarchal family structure prevails in the Turkish family, European families are more democratic and autonomous. As a result, it is possible to increase examples to show differences between two cultures. However, unfortunately, there are limited studies conducted to understand how much these cultural differences contribute to both cultures' delinquency and illegal substance rates.

On the other hand, the data used in this thesis was collected from Bagcilar high school students located in the Bagcilar borough, which is the most crowded borough of Istanbul. Even though Bagcilar is one of the boroughs of Istanbul, with its population of 719,267, it is bigger than most cities. From the economic perspective, one can find a very important business center, press plazas and banking facilities in the Bagcilar borough.

Demographic studies have shown that Istanbul, especially the Bagcilar borough, is one of the leading places in terms of receiving immigrants and can be described as a mirror of cultural diversity in Turkey. Even though there are limited studies aimed to understand the detailed demographic structure of the Bagcilar borough in Turkey, the diversity of age groups in this borough are reflected in the whole of Turkey. For example, 30 percent of the population is between the age of 5 and 19 years in Turkey, and 33 percent of the population of Bagcilar borough is aged between 7 and 22. Therefore, since Bagcilar borough shows similar characteristics to the overall Turkish demographic structure, it was selected as a place where the data was collected.

Reflecting on Empirical Findings

As has already been discussed in detail, the main purpose of this study is to measure social control theory in Turkey where limited studies on the subject have been conducted. For this purpose, a detailed empirical analysis was presented in earlier chapters. This section aims to reflect on the empirical findings of the study.

The findings in the preceding chapters demonstrate that there are differences in the distribution of delinquency and illegal substance use. While the distribution of delinquency shows a close range with 42.1 percent having performed delinquent acts and 57.9 percent being non-delinquent; the distribution of illegal substance use shows greater variance, with 90.8 percent of respondents being non-illegal substance users and 9.2 percent of respondents being illegal substance users. Therefore, there is significant variance between delinquents and illegal substance users. It is quite normal to meet such a result because of the sanctions of and attitudes toward both behaviours, which differ widely from one another. While there are serious legal sanctions for illegal substance use, there are less serious sanctions for delinquency. On the other hand, the age range of students is between 13 and 18 in this study; therefore, in accordance with their ages, it is less likely to see illegal substance use among those students compared to the older students who go to university. In the meantime, delinquency as measured in this study might be more prevalent among the student respondents and in their age group.

The findings of this study indicate that trust in conventional institutions, as well as honesty, rule settings, parental monitoring, time spent on homework, out-of-school activities, peer delinquency and peer involvement affect delinquency among the students, which is consistent with most previous studies.

Trust in conventional institutions is one of the important elements in preventing delinquency. According to research results, a vast majority of the Bagcilar high school students trust police, the judicial system and other governmental institutions; in fact, there is a negative correlation between trust in governmental institutions and delinquency. In other words, students who trust institutions are less likely to be involved in delinquent behaviour. This result was also confirmed in other surveys carried out by SONAR and TNS, which show that the rate of trust in police in Turkey is somewhere between 65 percent and 80 percent. Among the other organizations, trust in the police is the second and third row in these surveys, respectively. However, trust in conventional institutions has no effect on the measurement of illegal substance use. Different from delinquency, because of variance, trust in conventional institutions is limited to the measurement of illegal substance use, which in this study is: 90.8 percent for those who have never used illegal substances and 9.2 percent for those who have used them.

Therefore, multivariate analysis might not find a correlation between the two variables. On the other hand, illegal substance use among the students whose age ranges between 14 and 18 is probably experimental use rather than problematic use. Therefore, this effect should be considered in measuring the correlation between trust in conventional institutions and illegal substance use.

Measuring honesty gave parallel results with trust in conventional institutions. According to research results, taking laws seriously affects students' behaviour toward delinquency and there is a negative correlation between honesty and delinquency. The more students believe in laws and regulations, the less they are involved in delinquency. In fact, both variables, honesty and trust in conventional institutions, are connected to each other in some way; however, while trust in conventional institutions is related external factors such as institutions and their behaviour, honesty is related to internal factors such as how much students believe in the benefit of the laws and whether they have the intention to obey the laws. It is quite difficult to understand which comes first, honesty or trust in conventional institutions. For example, one might believe the laws and the benefits of such laws; however, if same person sees that others do not obey the laws and acquire benefits from their delinquent behaviour; or sees that rule breakers are not punished for their delinquent behaviour—then trust in laws decreases over time. At this point, the role of institutions begins, which consists in finding delinquents and putting them in front of justice. On the other hand, the efficiency of conventional institutions increases societies' trust in laws, and in this case, honesty also increases. Therefore, it becomes clear that these two elements are complementing each other.

In the Turkish example, with the latest attempts to join European Union, several laws have been enacted in Turkish Parliament and some laws were changed to become compatible with European Laws, that is, to satisfy the human rights criteria. All these legal and governmental institutions attitude changes positively affected the perception of the citizens toward governmental institutions, laws and rules. Both trust in governmental institutions and in the laws have increased in Turkey. However, the correlation between honesty and illegal substance use could not be found. As mentioned above, because of the methodological and experimental status of illegal substance use, the correlation between the two variables was found to be non-significant.

In terms of evaluating rule setting and parental monitoring as elements of supervision, the results indicate that both elements are important factors in the prevention of delinquency, but only parental monitoring was found significant for illegal substance use. However, on the contrary of general perception, rule setting was found to be positively correlated with delinquency while parental monitoring was found to be negatively correlated with delinquency—which is consistent with most prior researches. In the cultural context, traditional family values are still dominant in the Turkish family. There is strict discipline and the authority of the father in the family is unquestioned. Therefore, it is not surprising to see that both rule setting and parental monitoring are significant elements in the measurement of delinquency. Due to the fact that there is a disciplinary system in the Turkish family, parents question and check on their children in terms of understanding where they are or who they are with.

However, contrary to expectations, rule setting was found to be positively correlated with delinquency, which contradicts previous studies. As mentioned before, direct or indirect effect supervision has various effects on children. According to researchers, involvement in delinquent behaviour in most cases occurs momentarily; however, parents cannot always control their children. Therefore, researchers believed that indirect supervision is more effective than direct supervision. In these terms, parental monitoring is much more effective than rule setting. However, this explanation does not rationalize the positive relations between rule setting and delinquency. Therefore, the positive correlation between rule setting and delinquency might be related to the reaction of children to the oppressive behaviour of the families. The more children experience strict discipline, the more children develop a resistance to those rules. Controlling children's behaviour is one thing, but dealing with oppressive behaviour of the families over their children is another. The results of this study showed that direct and oppressive supervision increases the likelihood factor for delinquency.

Involvement is also another discussed element of social control theory. This study measured the involvement in delinquent behaviour with time spent on homework and engaging in out-of-school sports activities. According to research results, spending time with homework is a decreasing factor for delinquency. As explained in previous chapters, social control theory claims that spending time in conventional activities leaves minimum

time to engage in delinquent behaviours. However, a GPA in mathematics and linguistics are not significant factors in the measurement of delinquency in this study, which is inconsistent with doing homework. It is common sense that if students work harder for their lessons, their grades should be higher than those of others. Therefore, it is expected that grades should have been significant in the measurement of delinquency. While investigating possible reasons regarding this issue, it has been noticed that some researchers have claimed that the GPA status might reflect future delinquency rather than current delinquency. However, this study used cross sectional data; therefore, it cannot predict future delinquency or provide an opportunity to measure future delinquency in the same way as longitudinal data predicts.

Another element of involvement, out-of-school sports activities, positively and significantly affects delinquency. Sports activities taking place without the supervision of authorities increase the risk factor for delinquency. Doing sports at the school is always encouraged by the academicians and professionals; however, as a result of doing sports activities without any control, students tend to gang up. During competition among sports groups, different risks might emerge such as young people becoming involved in fights, gambling, etc. Additionally, previous researches assert that gang groups find their members among those types of interactions with peers. Therefore, positive correlation is one of the expected results of this study. On the other hand, as will be mentioned below, peer involvement is also significant and positively related to delinquency. It is obvious that these two elements affect each other. From the Turkish perspective, unfortunately, students in Turkey cannot find as many professional sports training opportunities as their western counterparts. Government still cannot provide enough opportunities to the students to pursue professional sports. For example, in the US, universities provide grants and scholarships to students who are successful in professional sports; however, there are limited opportunities in Turkey, where such grants may only be provided by private universities.

Peer effect is one of the most important factors discussed among criminologists, in terms of involvement in delinquency. The results of this study have shown that both peer involvement and attachment to peer delinquency are significantly and positively correlated with delinquency. Even though social control theory presumes that there is a

negative correlation between attachment to peers and delinquency, this study found contradicting results with social control theory assumptions. However, it should be said that social control theorists have implied attachment to conventional peers rather than attachment to any peers. Therefore, attachment to delinquent peers is the subject of social learning theory rather than social control theory. The main concept in social control theory is spending time in conventional activities rather than in any types of activities. The measurement of peer involvement in this study does not necessarily reflect conventional activities. It is a controversial issue how much watching TV, playing video games, etc., are to be considered conventional activities. Similarly to sports activities, in Turkey, schools are very poor in providing opportunities for conventional group activities with peers, such as study groups. As mentioned before, the population of a typical class in some Turkish schools can reach up to 70 or 80 students. Under these circumstances, it would be difficult to expect teachers to spend enough time with students in person or to spare dedicated time for students' groups or social activities. Therefore, peer involvement in this study actually may not reflect involvement with conventional peers.

On the other hand, religiosity, aspiration and expectations, quality of communication in the family, family involvement, family structure, out-of-school work, academic achievement, school commitment and attachment to teachers have no effect on delinquency among the students. These findings are inconsistent with the literature and might result from lack of available data to measure a different aspect of it, or it may be due to the statistical or methodological structure of particular studies, such as different time periods covered, units of analysis, samples, model specifications, problems of statistical analysis, and inference inconsistent with most previous studies.

One of the unexpected results was observed in the measurement of religiosity in this study. During the investigation of cultural differences between Turkish and European cultures, religiosity seemed to be the most significant difference between the two cultures, and this is also the core foundation of Turkish culture. However, study results showed that religiosity is not a significant factor for delinquency. While researching the reasons for this unexpected result, it was understood that tools used in the measurement of religiosity reflect religious beliefs rather than religious practices. In

Turkish society, religion and Turkish nationalistic identity are embedded into each other. According to the 2009 Pew report, 98 percent of the Turkish population is Muslim; however, this rate does not reflect the percentage of those who actively engage in their religious practices. From this perspective, religiosity should be measured to understand whether there is difference between religious belief and religious practice in terms of measurement of delinquency. It is obvious that believing in a religion is one thing; however, practicing a religion because one is afraid of religious sanctions, such as going to Hell, is another.

Furthermore, this study could not find the correlation between attachment to teachers, attachment to school, GPA, school commitment, aspiration/expectation, and delinquency. In the detailed analysis of these variables, however, it seemed that all of those elements are related and affect each other, one way or another. For example, a high level attachment to teachers might affect students' interest in that class and, eventually, students might acquire high grades; and as a result of high grades, the future expectation and aspiration of the students increases, therefore, subsequently their bond with the school also increases. From another perspective, a higher aspiration and expectation motivates students to work hard and get good grades, which results in an increased attachment to the school. However, as mentioned earlier, environmental conditions in the school are not as abundant as expected. Crowded classes, inadequate interest from teachers and defective school facilities affect students' attachment to those variables.

Family structure, family involvement and quality of communication are also non-significant elements in the measurement of delinquency. There are possibly two different reasons for such result, one of which is the variance of the variables and methodological deficiencies. In the measurement of family structure, it has been observed that 90.2 percent of the students were living in an intact family, which leaves limited variance in the measurement of the correlation between family structure and delinquency. As mentioned before, Turkish cultural values overemphasize to keep the family together; additionally, the roles of the family members are defined based on cultural perceptions. Most Turkish women stay at home as housewives and take care of the children. The fathers' role is maintaining the families' standard of living and seeing to their needs.

Coming from this tradition, Turkish women never acquire economic power compared to their western counterparts, which is one of the most important factors for making women dependent to the father in the family. This is still one of the major discussions in Turkey, and it is claimed that this is one of the possible reasons for the low rate of divorce in Turkey compared to the higher rates in western culture. On the other hand, divorce is condemned by Turkish society, and results in social sanctions, especially in some parts of Turkey. Therefore, because of the above mentioned and other possible reasons, the divorce rates are low in Turkey, which eventually affects the variance of family structure.

Second, according to social control theory, interaction and communication should be around the conventional values. However, this study measured any type of communication and involvement other than conventional activities. As mentioned in previous chapters, unfortunately, even though spending quality time with family members is a staple of Turkish culture, the current social and economic circumstances do not offer such opportunities. For example, in western countries, families have television or movie nights, go on camping trips or attend sports activities with their children to increase intimacy between parents and children; however, families in Turkey do not find such opportunities. As a result of the deceptive understanding of difference between involvement in conventional activities and involvement in any type of activities, quality of communication and involvement in the family may not show significant effect within the family. In conclusion, as the discussion indicates, the research findings contribute to understanding how social control theory explains delinquency and illegal substance use in Turkey where limited studies have been conducted from the theoretical perspective.

POLICY RECOMMENDATION

Preventing delinquency and illegal substance use, unfortunately, is only seen as the responsibility of law enforcement agencies, while other organizations and institutions have disregarded their responsibilities and duties in this respect. Even though law enforcement agencies play a critical role in terms of providing a safe environment, increase in the trust level toward institutions as public figures happens when those who are involved delinquency and illegal substance use are put into the justice system. Other institutions and organizations also have critical roles in terms of preventing delinquency and illegal substance use. This fact has been seen by mass media and the public, and with the increase of awareness among social organizations and academics, it has become necessary to share the responsibility of law enforcement agencies in the prevention of crime. This is because there are multiple reasons for the occurrence of crime, such as economic, social, or perhaps even biological factors related to other organizations other than law enforcement agencies.

As a result of this new perception, the prevention of crime is not only law enforcement's responsibility; in fact, it is not only governmental organizations' responsibility but social and private organizations should also take part in these types of studies (McCollister et al.).

Early Turkish delinquency and illegal substance use preventing policies were only limited to legislation and efforts of law enforcement agencies, rather than providing rehabilitation, early education and preschool training programs. For example, until recent years, illegal substance users have been treated as criminals rather than the victims of those substances that they use. Instead of putting them into the rehabilitation programs to curb spreading the problem, they have been put into the justice system, and eventually sent to prisons where they have met with new drug sellers and different drug users, who in turn help them to grow their drug related social networks.

On the other hand, the Turkish drug policy has mostly focused on drug trafficking enforcements. As a result of its strategic position, Turkey has become the bridge between drug producing and consuming countries. While opiates and their derivatives were transported from eastern countries, mainly Afghanistan, Pakistan and Iran, through

Turkey to the western countries, such as Germany, the Netherlands and England; the chemicals used in the production of illegal substances and synthetic drugs, such as ecstasy, etc., were transported from western countries through Turkey to the eastern countries. In the middle of these transactions, Turkey has been affected as a transit country until recent years. Therefore, the main strategy of Turkish crime policy has been established based on law enforcement agencies' efforts. However, in recent years, drug consumption rates began to increase and the necessity of a new crime and delinquency policy emerged.

Therefore, the Turkish Government set new goals and objectives including education, prevention, partnerships with the media, drug abuse treatment, research, new legislation compatible with the contemporary world's requirements, foreign assistance initiatives, interdiction, protection of Turkish borders, increased capacity of law enforcement agencies, and support of these agencies with the latest investigative technique and technical equipment for the effective prevention and fight against delinquency and illegal substance use.

However, it is obvious that the effort to curb delinquency and illegal substance use is still limited. The results of this study also showed that there is still a long way to go in order to provide the safest and most secure environment, and to prevent children from becoming involved in delinquency and illegal substance use. Therefore, the results of this study have a number of policy implications for policy makers, academics and families.

The results of this study showed that social control elements should be developed and integrated with other criminological theories which increase the explanatory power of social control theory in the measurement of delinquency and illegal substance use. For example, even though peer delinquency is not the subject of social control theory, this study found that attachment to delinquent peers increases the risk factor for both delinquency and illegal substance use. Additionally, the measurement of peer involvement is one of the delicate issues in the analysis of social control theory. Although social control theory assumes that there is a negative correlation between attachment to peers and social control theory, this study found inconsistent results with this

assumption. Therefore, while measuring peer involvement, conventional relations should be considered rather than any type of involvement.

There are various sources, such as school, community, family and mass media that may help to prevent delinquency or intervene in drug use among students. However, one program alone is not adequate to prevent delinquency and adolescence drug use. For example, school programs give information about crimes, drugs and the consequences of drugs, but they do not help to improve social skills or tackle problems to prevent negative peer effects or drug use. It is a fact that peer delinquency is one of the significant elements that increases delinquency and illegal substance use among the students.

The education of families is one of the most important factors to prevent delinquency and illegal substance use. Families should be educated regarding understanding the difference between spending any time and spending quality time with children. Intervening programs should be developed to educate parents on social, cultural and moral values. Families and students should be involved in the development of intervention programs as much as the professionals (W. L. Turner, 2000).

School and class population seems to be extremely high among Turkish schools. Therefore, by providing new school and classes, population of the classes should be decreased in order to concern with children in person. In the mean time, sport facilities and appropriate places for social activities should be provided by authorities. According to result of this study, students are more likely involve in delinquent behaviour if they engage out-of-school activities which is done without supervision of authorities. Therefore, students should be provided school sport activities under the supervision of authorities rather than out-of-school sport activities totally out of control.

Finally, law enforcement agencies should increase trust in institutions by setting up programs aimed to increase intimacy between institutions and students. Possibly, periodical visits to schools should be made, students should be invited to institutions, and social activities should be arranged between law enforcement agency members and students to acquire the confidence of the students.

LIMITATIONS OF THE STUDY

The first limitation of this study is the use of cross sectional data instead of longitudinal data. Furthermore, this cross sectional data is secondary data, which was not collected to measure specifically the social control theory in Turkey, even though the survey questions reflect the soul and purposes of this study.

Studies that use cross sectional data are inadequate to examine the causal relationship between social control elements and both delinquency and illegal substance use (R. Turner & Barrett, 2005). Due to the fact that the data is cross sectional, this study could not follow students and determine how much social control theory could explain both delinquency and illegal substance use in further years (Costello & Vowell, 1999; Kierkus & Baer, 2002), which fact reduces the explanatory power of the causal relation between social control elements and delinquency, or the causal relationship among social control theory elements (Costello & Vowell, 1999; Matsueda, 1982). According to researchers, cross sectional data are the most significant limitation of, especially, drug related studies (White, Pandina, & Lagrange, 1987). Therefore, theoretical studies, in fact, need longitudinal studies in order to show the validity of this theory and how much the theory can explain crime.

Second, this study could be applied only to a limited number of people from the same region and of similar ages (Aliverdina & Pridemore, 2007; Kierkus & Baer, 2002; Rebellon & Van Gundy, 2005). Samples of this study are heterogeneous and our samples are selected from high school students. Therefore, results cannot be generalized to all Turkish people (Aliverdina & Pridemore, 2007; White et al., 1987).

Social control theory was put onto the stage in the US; therefore, although there are various studies that examine the causation of both delinquency and illegal substance use from the social control theory perspective in the US and other western countries, there are limited studies of the kind in Turkey. Therefore, there are limited sources in Turkey that allow one to make a comparison of how much social control theory can explain both delinquency and illegal substance use in this country (Aliverdina & Pridemore, 2007).

Another limitation of this study is that the data were collected from surveys that were applied to high school students who are continuing their education in Bagcilar. Although

students were informed that they would neither incur legal liability after they complete the survey nor have an obligation to complete it, students might have concealed the truth about using some types of drugs and engaging in delinquent behaviours because involvement in such activities is in contravention to the laws. Therefore, subjects may not have given correct answers to some questions, which might have changed the results of the study. Results might show a fluctuation between minimal to maximum values (Erickson et al., 2000; Matsueda, 1982).

During the measurement of the bivariate correlation among independent variables, peer involvement was measured as negatively correlated with most social control elements, contrary to the assumption of social control theory. The most possible reason might be that in Hirsch's original study, involvement was referred to as time spent in conventional activities; however, in this study, peer involvement was measured with how much time students spend with their friends, for instance, computer games or going to the movies—in sum, doing out-of-school activities. Therefore, the measurement does not meet the requirement of exactly what social control theory assumes in the context of involvement. As a result of the methodological limitation, other social control elements are correlated negatively with peer involvement.

On the other hand, the father's and mother's education are observed as negatively correlated with most social control elements, which might be caused as a result of distribution of both variables. In the measurement of the univariate analysis of both variables, 91.1 percent of students' fathers and 94.6 percent of students' mothers have a high school education or lower. Therefore, as a methodological limitation, the negative correlation between parental education and social control elements might be observed.

In this particular study, causation of both delinquency and illegal substance use is somewhat explained with social control theory. However, during analysis, data has not shown the time sequence which indicates what comes first—delinquency/illegal substance use, physical abuse or low attachment to social control elements. Therefore, it should be stated that although there is a relationship between social control elements and both delinquency and illegal substance use, it is still ambiguous to say which causes the other.

On the other hand, in the measurement of social control elements, all variables should reflect the same time sequence and samples; however, in the measurement of GPA, unfortunately, variables were collected based on one-term grades for both mathematics and linguistics classes, which represent half of one education year. When delinquency and illegal substance use were measured in the last 12 months, the act of measuring GPA for only a 6 month period might cause others to criticize this study as not representing a full year of grades.

Finally, delinquency and drug use is an increasing problem in both Turkish and western societies; nevertheless, when Turkish and western countries' statistics were compared to each other, a significant difference was found in terms of how much, that is, at what level, drug use is prevalent in both societies. For example, according to the United Nations Office on Drugs and Crime annual report, cannabis use prevalence is 12.6 percent in the US and 1.9 percent in Turkey; cocaine use prevalence is 2.8 percent in the US and 0.04 percent in Turkey; opiates use prevalence is 0.6 percent in the US and 0.05 percent in Turkey; amphetamine use prevalence is 1.8 percent in the US and 0.2 percent in Turkey; and ecstasy use prevalence is 1 percent in the US and 0.3 percent in Turkey (SAMHSA, 2007b; UNODC, 2007). Similar to American statistics, 2007 ESPAD statistics showed that 23 percent of European boys and 17 percent of European girls have tried illegal drugs at least once while this statistic remains significantly low for Turkish boys and girls (B Hibell et al., 2008). Therefore, this study may not reflect results as strong as those in the studies that have been conducted in western European countries because of insufficient sample size.

RECOMMENDATION FOR FUTURE STUDIES

The main objective of this study has been to explore how much social control theory explains delinquency and illegal substance use among Turkish high school students. However, this study is limited to secondary and cross-sectional data which is collected from Bagcilar borough of İstanbul. Although this study has shed light on some points of delinquents and illegal substance user from social control perspective, there are still a considerable number of unknown questions about Turkish drug users.

Even though Bagcilar borough show similar characteristics with population and age diversity of students to Turkey, it is obvious that broader surveys through Turkey can contribute much more to see healthier results in terms of measuring social control theory.

The data which has been used in this study is cross-sectional data. However, according to researchers correlation between school factors and both delinquency and illegal substance use should be measured with longitudinal data because most problematic drug use show its effect after graduation and mixing up to social life. Therefore, school related elements such as attachment to school, teachers, graduate point average and aspirations and expectations should be measured with longitudinal data.

Another important factor in collecting data should being careful about variance of the collected data. For example, in measurement of this data it was observed that 90,8 percent of the students never used any type of illegal drug use. This limitation also probably caused methodological deficiencies in measurement of social control elements because variance of the illegal substance use stays limited. Additionally, while measuring illegal substance use, difference between experimental substance use and problematic illegal substance use should be considered carefully. Furthermore, both delinquency and illegal substance use should be learned not only from self reports but also official crime reports in order to check reliability of responds.

Questions in measurement of some elements should be more specific and adapted to Turkish society. For example, in measurement of religiosity, respondents were asked whether they believe in God or how much respondents see themselves as religious person. This question stayed very intangible because most Turks see themselves religious

as long as they are Muslim. However, previous researches showed that religious practices are more determinative in measurement of religiosity rather than religious beliefs. Similar problems are observed in measurement of involvement. For example, respondents asked how much they watch TV or play video games with their parent rather than measuring involvement of the respondents with how much conventional activities they carried out with their parents and friends. Therefore, future studies should be more careful about how much the questions meet requirements of the study on the surveys.

As explained in previous chapters, social control theory claims that spending time in conventional activities leaves minimum time to engage with delinquent behaviours. However, amount of time which is spent in homework should be analysed because previous studies showed that gradually time give different affects on students' involvement in delinquency. For example, time spent on homework 2 hrs and 10 hrs might affect students' involvement in delinquency and illegal substance use.

Affect of family structure on supervision and rule setting should be examined. Because while family structure has no effect on delinquency and illegal substance use, rule setting and parental monitoring have significant effect. However, previous studies claimed that family intactness is one of the important factor on supervision Therefore, the correlation between family structure and supervision should be analysed to understand effect of other factors which change results in measurement of the variables.

Lastly, this study measured only illegal substance use such as marijuana, heroin, cocaine and ecstasy among high school students; but not alcohol, chemicals and other legal substances. Therefore, further research is needed to see how much social control theory explain use of other type of substances.

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